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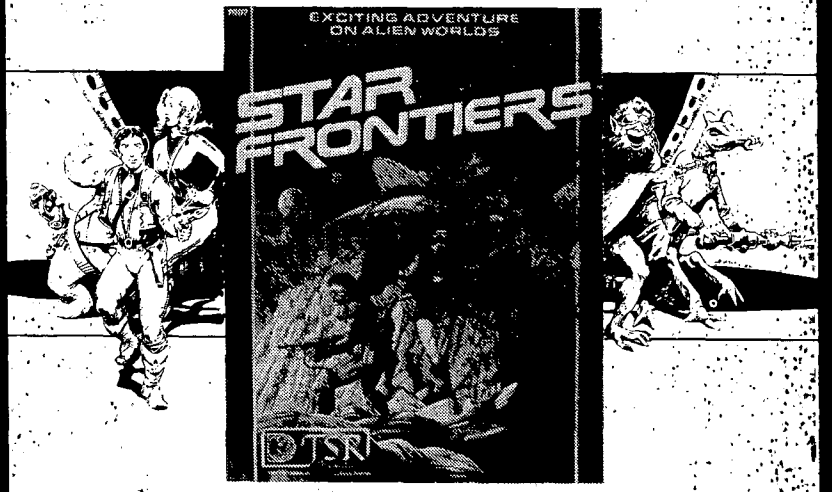

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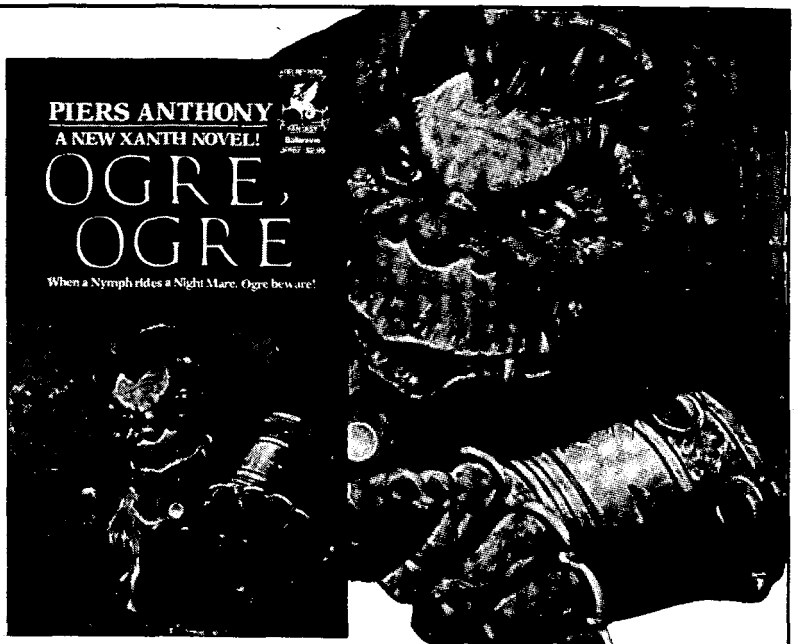

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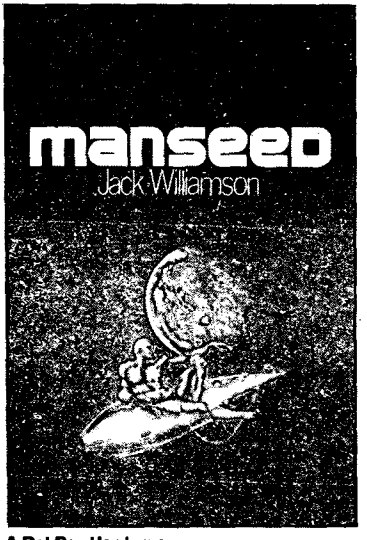

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UP FRONT

by Kathleen Moloney

It's alway a pleasure to put together an issue of *IAsfm* in which there is a story by *IA*. We're particularly pleased to have this month's cover story, since Dr. Asimov took time out from putting the finishing touches on *Foundation's Edge*, his long-awaited follow-up to the Foundation Trilogy, to write it. You'll be hearing—and reading—a lot more about *Foundation's Edge* in forthcoming issues, but for now, there's "The Dim Rumble" to enjoy.

A piece of advice that Dr. Asimov has often given to aspiring SF writers is, "And *don't* quit your job." Three of the contributors to this month's issue have clearly taken this message to heart: Sharon Webb ("Shadows from a Small Template") is a nurse; Warren Salamon ("Time on My Hands") is a lawyer; and John Brizzolara ("Coffin Rider") is a rock musician. William Webb, whose first-ever published story is "The Pick-Up," on page 123, is a college student and consequently does not yet have a job to quit. We also have stories by people who write for a living, though: Jack Haldeman, Robert Young, Steve Perry & George Florance-Guthridge, and Sharon Farber.

In addition to our regular features—On Books, Martin Gardner, "Mooney's Module," Conventional Calendar, the *IAsfm* Crossword Puzzle, and the Editorial—this month we introduce Viewpoint, a forum for opinions about science and science fiction. Since if there is one thing that people in the science and science fiction fields have, it's opinions, we hope to include some lively articles in the future. We begin with the extremely convincing opinions of Dr. Lewis Thomas, whose *Lives of a Cell* and *Medusa and the Snail* have been widely praised and widely read. He explains "Why Johnny Doesn't Like Science" and what can be done to correct this sad state of affairs.

"Viewpoint" will occasionally take the place of "Profile," which you may have come to expect in the front of the magazine. (I know there have been only three Profiles, but *IAsfm* readers seem to form habits more quickly than most.)

Unless one of Dr. Asimov's robots takes over this column (see page 7), we'll see you next month. ●

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EDITORIAL

HOUSEHOLD ROBOTS

by Isaac Asimov

In my editorial in the August 3, 1981, issue of this magazine, I mentioned my influence on Joseph F. Engelberger, the President of Unimation, Inc., the most important company in the world today as far as the production, installation, and maintenance of robots is concerned. It is the nearest thing, so far, to the fictional U. S. Robots and Mechanical Men, Inc., of my positronic robot stories.

We are today, of course, only at the very beginning of the "age of robots," but already it is a lusty beginning. There are more than 75,000 industrial robots in Japan (more than in all the rest of the world combined), and additional robots are being added at the rate of 20,000 a year. I suspect the rate itself will increase and that other nations will be making efforts to follow Japan vigorously.

It is important, however, to remember that the robots now in existence are by no means the positronic robots of my fiction. They are to my fictional robots rather as a slide-rule is to a pocket-computer.

The "industrial robots" are merely computerized levers; they are specialized arms controlled by computers. They are so specialized that they are fit only for the most limited tasks and have absolutely nothing in the way of "brains." (This is not surprising. Even among lifeforms, extreme specialization obviates the need for intelligence, since the more constricted the capabilities, the less the need for judgement or any capacity for making shrewd decisions.)

This means there is no use talking about the Three Laws of Robotics in their connection.

In the summer of 1981, for instance, an industrial robot in Japan was malfunctioning, and it was necessary for some human being to make repairs. There was a chain fence around the robot that should have been opened before the repairman approached. The opening of that fence would have shut off all power to the robot, and that was an externally applied First Law that prevented the robot from harming a human being. That

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First Law had to be applied by the human being; the robot did not possess it as an inherent part of its structure.

The human being failed to do this. He stepped over the fence, leaving the robot with potential for power. To be sure, he placed the robot on manual so that it wouldn't work unless it were turned on—but then he accidentally nudged the "On" switch.

The robot automatically got to work. The arm moved down to do what it was designed to do. It caught the employee, pinning him against a machine processing automobile gears. It continued its motion as though it were completing its task, and the employee was killed.

Remember that machinery of all sorts, even very simple machinery, has been killing human beings, by accident, all through history. Remember, too, that in this case, the fault was entirely that of the human being for not opening the fence and for nudging the switch.

Nevertheless, when the news was finally disclosed to the public some months later, newspapers everywhere featured headlines reading "Robot Kills Man."

That gives us a false idea, of course. Somehow, one gets the impression of a vicious robot in ambush, trapping an unwary human being and then bursting out, with slavering jaws, and brutally murdering him.

You would be surprised how many reporters promptly phoned me, demanding an accounting of why the robot had violated the First Law. I got the peculiar notion that they were blaming *me*. And yet it was rather flattering, too, I suppose.

The question is, though: Will the time come when robots will be more than computerized levers? Will they look more like human beings? Will they be more nearly subject to the Three Laws? Will they, in fact, come closer to my fictional notions of four decades ago?

I think they inevitably will. I also think the time is not very far off.

As long as they are used in industry only, to be sure, specialization will remain a necessity.

Suppose, though, we were considering robots in the household—not robot-laborers on the assembly-line but robot-servants in the home. In the home, needs are more generalized. You would want a robot to run the various appliances, wash the dishes, serve tea and cakes, take coats, run the vacuum cleaner, brew the coffee, fry the eggs, and so on. It would be ridiculous to have twenty different robots, each specialized into fingers that pushed buttons or trays that carried tea-cups.

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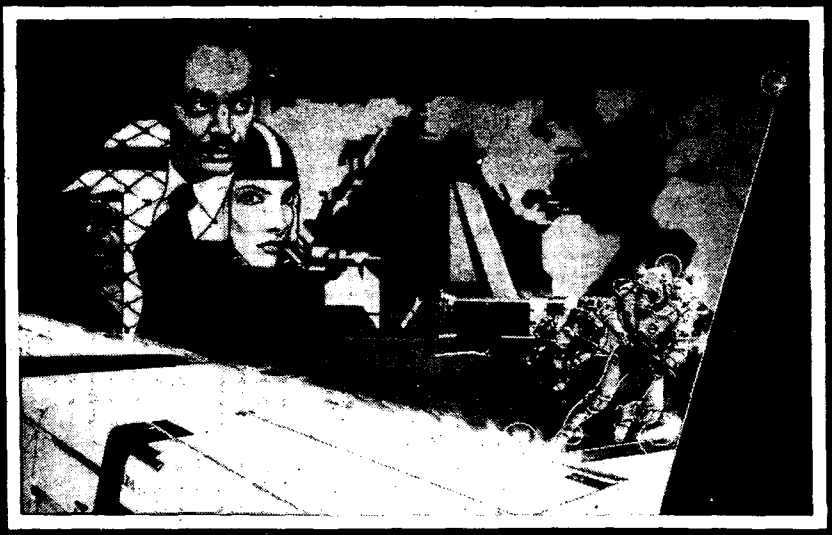

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What would be wanted would be a generalized robot that would do all the tasks, perhaps not with the precision of the true specialist—but each of them well enough.

And, as a matter of fact, the research department of Unimation, Inc.—Joseph Engelberger's company—is working on this very thing. A prototype exists, and it is possible that it will be perfected to the point at which various models will be on sale for use in the home during the 1990s.

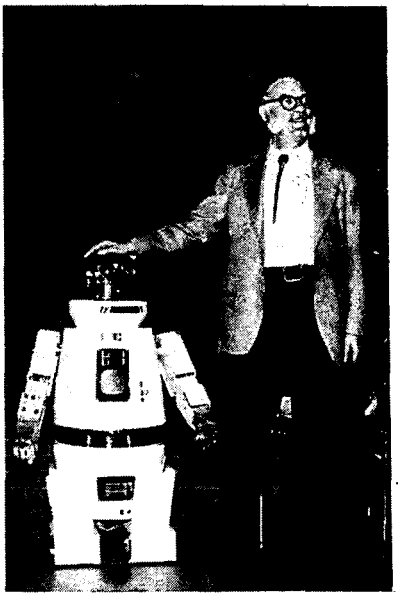
Inevitably, it seems to me, these models will be rather humanoid in shape and, with time, will grow steadily more humanoid. There are two reasons for this.

First, for a generalized robot to do a number of different tasks with adequate skill, it would be best if it were able to use human technology with reasonable ease. It would have to handle the various household appliances, do the dusting, cleaning, washing, arranging, stacking, opening, closing, and so on.

All these things have been designed for human working. Things about the house have been designed to be gripped by human hands, to be pushed by human fingers, to be encompassed within the human reach, to be usable according to the capacity of the human body to stretch and bend. For a robot to make full use of human technology within the home, the robot will have to have a shape that is at least roughly human, able to bend in the same places to the same degree, to stretch, to pinch, to twist, and so on. And the more the robots are perfected, the closer the duplication will have to be.

After all, to build a technology of totally different design to suit a non-humanoid robot would be impractically expensive. Besides that, we would want a technology suitable for both because of the fail-safe characteristic. We would want a technology that humans can

Isaac Asimov (right) meets a friend.



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make use of in default of robots, and vice versa.

Second, a robot working on an assembly line need not interact with human beings, but a robot in the home *must* interact. And if it does interact, it would do so more effectively if

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it were humanoid in shape. As it gets "friendlier"—that is, easier to use—it should get more humanoid in shape, particularly once it is designed to accept spoken orders and to answer in its own voice.

There's a personal point I must mention in this connection.

Mr. Engelberger expects to have his prototype household robot sufficiently usable to be put to work in his own home by 1985, and it would then be sufficiently humanoid and friendly to deserve a name for itself. In fact, it has already been given a name. The name is Isaac, and it's no accident. It is so named in my honor.

He isn't even the first to do this. There is a four-foot, roughly-humanoid robot that has been seen upon many occasions and, on two occasions, has shared a platform with me. There is even a photograph of me with the robot, with my hand resting on its head in a friendly manner, which has been much circulated.

It is not a true robot; it is merely a device under remote radio control. But its name is Isac—again in my honor, despite the missing "a." And what is the name of the firm that produces it? Isac Robotics.

In fiction, too, there have been a number of cases of stories written by writers other than me that have referred to robots by some version of my first or second name.

The connection is unmistakable—and very flattering. Yet it does give rise to certain uneasy thoughts. Is there any possibility that "Isaac" may become a generic term for household robots? People may some day be saying, "I bought a new isaac yesterday." or "Just on the day the boss comes to dinner my isaac goes out of order."

And my publishers haven't helped. In 1982, Doubleday published a complete collection of my robot stories. I called it "The Complete Robot Short Story Book," but my publishers thought that was too long. They cut it in half and the book has come out with the following on the cover in large and conspicuous lettering: ISAAC ASIMOV THE COMPLETE ROBOT.

I'm afraid I'm sunk. ●

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ON BOOKS

by Baird Searles

No Enemy but Time
By Michael Bishop
Timescape, $16.95

Michael Bishop's 1973 novelette, "Death and Designation Among the Asadi" (later expanded into the novel *Transfigurations)*, brought him into immediate prominence in the science fiction world and clearly established the anthropological bias of his work. It concerned an anthropologist observing an alien, primitive race on another world and his fascination with and eventual absorption by it.

Bishop has to a degree repeated himself in his latest novel, *No Enemy but Time*, with the major difference being that what separates the origins of the observer and the observed in this case is time, not space. The race is *Homo Habilis*, a protohuman species of the Pleistocene. (The Pleistocene seems to be *the* place—er, time—to be this season, between this and Julian May's *Many-Colored Land* series.) The observer is Joshua Kampa, a contemporary black, or half-black, really, since he is the son of a mute Spanish prostitute. (I make what seems to be a fine point here because much space is devoted to it in the novel.) Kampa is not a trained scientist, but he is working with one, a noted paleoanthropologist, in his one-man expedition to the Pleistocene.

Kampa is the only man who can do this because he has a unique talent: his collective unconscious is attuned to the Pleistocene, and he has dreamed of it all his life. His expedition is not really time-travelling; it is visiting a past that is exactly like the real past but is a projection or a resonance of an inaccessible reality, accomplished through Kampa.

This is certainly one of the more oblique approaches to the theory of time travel I've run into. It's perhaps perilously close to mysticism, but it is convincing enough to carry the story.

However, the story is more than "into the Pleistocene with gun and camera." Bishop has chosen to alternate Kampa's account of his "trip" with chapters devoted to Kampa's life story—a complicated one, which includes being adopted by an

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American couple and running away from home because his foster mother has written a book about his dreams of the past. This amount of background material certainly gives the protagonist character and depth not ordinarily enountered in the SF novel. But it also dilutes the main thrust of the book. For one thing, it adds little or nothing to our knowledge of Kampa's wild talent. For another, it verges too often on a problem-of-the-week TV movie. (Can a biracial adoptee find happiness in America's middle class?)

The major part of the novel, Kampa's solo venture in a simulacrum of East Africa two million years ago, is, therefore, reduced. It is still a gritty, vividly realistic picture of the life and landscape of that time and place. Kampa's first-person account is jazzy and ironically humorous, but Bishop's scientific bent shows through in the endless minutiae of the primitives' fairly limited culture, which Kampa eventually joins.

The author does try to inject drama with the thrill of the hunt, a relationship of the modern man with a hominid woman (which results in a child), his possible maroonment, and a climactic volcanic eruption. This was still swamped for me by the determined preoccupation with the earthier details of life in the Pleistocene, about which I learned more than I wanted to know.

There can be no doubt that Michael Bishop is a talented and inventive writer, but in *No Enemy but Time*, I could have used more science fiction in the fiction, and more fiction in the science fiction.

Pavane

By Keith Roberts

Ace Books, $2.75 (paperback)

I usually consign reprints to the end of the column, but this month there is one that is so good that it deserves featuring, and so relatively unknown (it's been out of print for some time in this country) that I think it will be new to a majority of readers.

This is Keith Roberts' *Pavane*, first published here in 1968. It is characterized as a novel on the cover, in a quote from Brian Aldiss. It isn't, really, but it also isn't quite the collection of short stories it might seem, consisting as it does of six sections (plus prologue and "coda") that are independent only to a degree. They share a setting—a stunning one—and three of them concern several generations of a single family; there is a cumulative effect that results in a whole far greater than the parts. This is hardly a new form to SF (*City, Foundation, et al.*), but Roberts brings a new qual-

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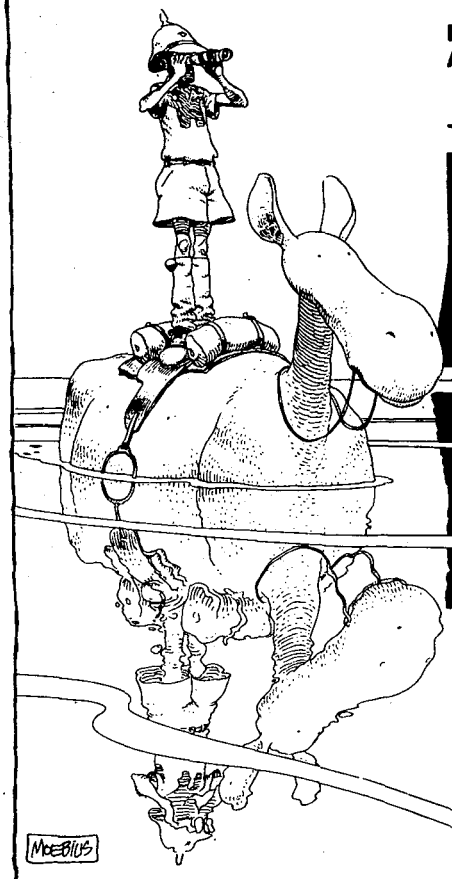

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ity to it, a concentration on character rather than concept.

Not that there isn't an original concept; it is the setting, which has endlessly intriguing ramifications. *Pavane* is laid in an alternate time, which diverged from ours with the assassination of Elizabeth I in 1588. Concomitantly, the Spanish Armada wins, and the Catholic Church destroys the Reformation to dominate Western civilization completely. Progress as we know it slows to a crawl; the Church bans or closely controls all technology. (There is immediate relevance in this generally frightening picture of a society dominated by religion.)

The first section, or "measure," as Roberts calls it in reference to the overall pavane theme, takes place in 1968, in an England that is more medieval than modern. There are strange anomalies, though. Transport of goods is accomplished by great steam-driven locomotives hauling trains, not on rails but on the roads. The story is of Jesse Strange, a loco driver, at a turning point in his life; it's a superb portrait of a man as dedicated to his exotic (to us) engine as a sea captain to his ship, as well as an evocation of what it is to drive such a rig through the primitive byways of this Britain.

The second story does something of the same for the semaphores, the high-speed communication devices of this continuum. Great clacking devices placed within sight of each other across the length and breadth of Europe and the British Isles, they are operated manually by men as skilled and speedy as our typists. We get to know them through the life and strange death of a dedicated young signaller.

Other stories concern an artist-priest who starts his own belated Reformation in revolt against the Inquisition of this twentieth century; the niece of Jesse Strange, involved in an affair with one of the still-Norman aristocracy; and her daughter, who sets in motion a revolt that aims to remove England from the rule of Rome.

And, just in case you might think this to be nothing but history rewrit, a touch of magic is added by the Old Ones, the People of the Heath, who survive in this Britain and who figure, to a greater or lesser degree, in each of the stories.

In all, here are six superb character portraits, drawn against a beautiful and intricate background of altered history and subtle magic. *Pavane* is quite a book.

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similar background, an alternate time in which the church dominates, but it's a very different kettle of fish. Robert Adams, author of the popular "Horseclans" series, has in *Castaways in Time* given us the old but always enjoyable premise of a motley group of moderns thrown back in time, in this case to 1639. The gimmick is that it's not the 1639 we know from history but an alternate one, the differences in which date back as far as the fifth century. There's no Reformation here, either, as well as a number of other variables.

The people from our time and place arrive with a complete house, all utilities still functioning, and a couple of trailer truck-loads of miscellaneous but useful material. The cause of this is a mystery to the deportees as well as to the reader, but well into the book a scientific rationale is given.

Adams is of the action-prone school of SF, and he wastes little time in character study or the details of how the group as a whole adapts to seventeenth-century life; in fact, he more or less abandons most of them early on and concentrates on Bass Foster, whose house is the one transferred, and Krystal Kent, a young doctor. They land in the middle of a war, in which Bass involves himself immediately, throwing in his lot with Arthur III, disputed

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ruler of England. From there, it's battles galore, since Arthur is being attacked from the east by Church-sponsored Crusaders, from the north by the Scots, from the west by the Irish, and from the south by rebel English.

It's anything but mindless warfare, though. Adams knows his history *and* his own alternate history, and he throws in a plot twist that enlivens things further: the discovery of a body wearing a ring enscribed Massachusetts Institute of Technology Class of 1998. Are there other time travellers about?

Castaways in Time, in short, is for the reader who wants nonstop action with a strong historical base, inventively altered.

Where Time Winds Blow

By Robert Holdstock
Timescape, $2.95 (paperback)

Here's yet another book with the word "time" in the title. Robert Holdstock's *Where Time Winds Blow* would seem to be yet another variation on the idea of playing with time.

I'm sorry to say that this one is an example of something I've been running into more and more lately: the novel that is chock-full of ideas that might be nicely viable if used coherently, combined with overwriting to the point of shapelessness. Coherence and clarity are key elements in SF, and only such master stylists as Ballard can

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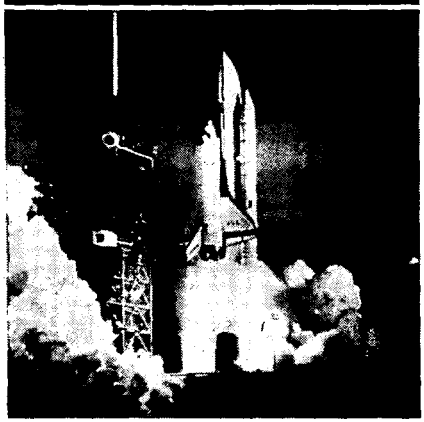

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depart from them with impunity.

Such novels are nearly impossible to write about, since if one is able to reduce them to basics (not easy with such a stew), they often sound sensible. But the piling of idea on idea, uneasily connected to a usually random plot, often ends up with nothing really making sense.

Suffice it to say that *Where Time Winds Blow* is about VanderZande's World, on which there is a great canyon, or rift, in which blow the "time winds," which deposit or remove objects from the past or future with murderous abruptness. Around this has grown a complex and sizable human colony, engaged in exploring and recording what's blown in and out. Typical of what I'm complaining about is the fact that it's never made clear why this huge effort is being expended, or who is backing it, since none of the artifacts is allowed off the planet.

The protagonists are a three-person team of rift-explorers, all involved in personal crises that are as confused as everything else. (Kris has come to the planet to search for his brother Mark, who was blown away; Leo claims never to have known him, but suddenly out of nowhere admits to having been in love with him; Lena, who has been having a long ongoing affair with Leo, seems peeved with everybody, as well she might.)

And eventually it is revealed that the time winds, on which the colony, not to mention the book, is based, aren't time winds at all, but something else entirely. I wouldn't want to spoil the surprise by saying what; besides, I'm not sure I know.

The Wizard Children of Finn
By Mary Tannen
Avon Camelot, $1.95
(paperback)

Here is yet another story with a time-tripping theme. Mary Tannen's *The Wizard Children of Finn* is different in a couple of ways. For one, it's an out-and-out fantasy—no scientific rationale here. It's a retelling of the story of Finn (aka Fionn), the Irish hero, or at least that part of it in which he emerges from the woodland hiding place where he has spent his boyhood and travels to Tara to assume the leadership of the Fianna. On the way, there are magical adventures such as the acquisition of the wondrous bag of Aoife, the eating of the Salmon of Wisdom, and the conquest of the fairy lord, Aillen, with the magic spear Birgha.

But here Finn is accompanied by two modern children—Fiona and her brother, Bran—who had met Finn in the present, where he had been sent as a final hiding place by

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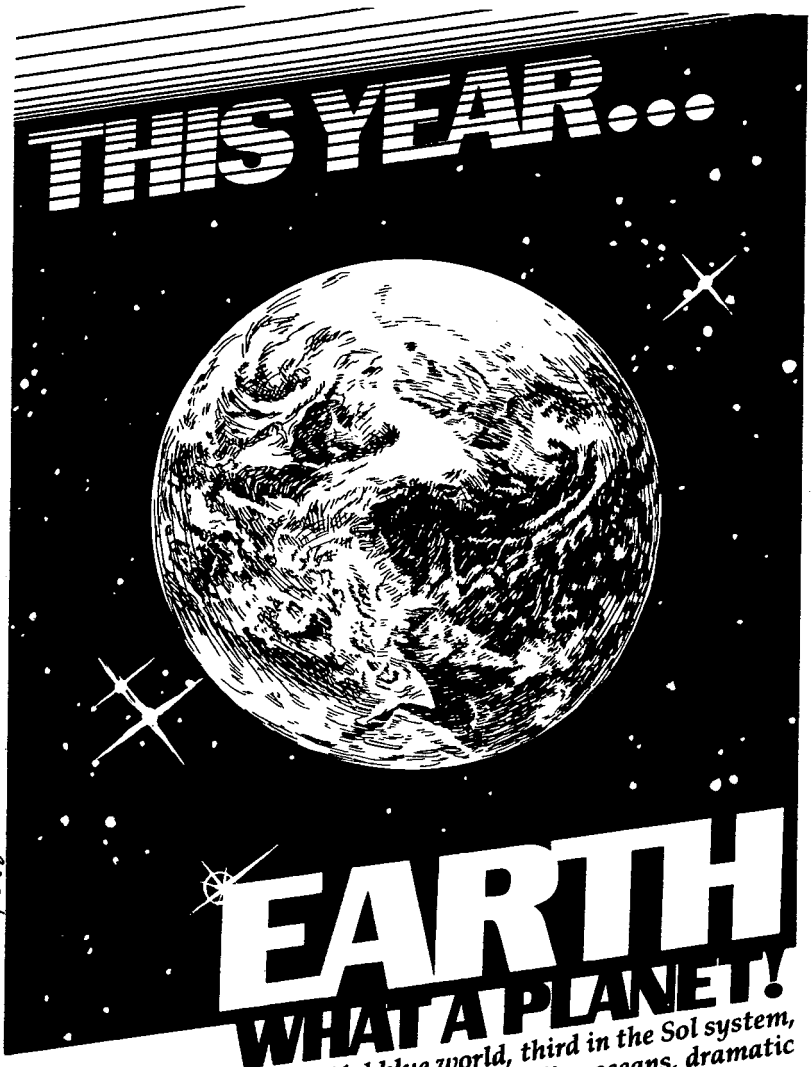

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his Druid guardian. Returned to his own time, the two children accidentally go along. So the epic is seen through their contemporary viewpoint, a device that is pretty consistently amusing, particularly if you know the original material.

The Wizard Children of Finn was written for young people, of course, but the adult with a taste for gentle fantasies and Irish mythology will certainly find enjoyment in it.

Pawn of Prophecy
By David Eddings
Del Rey, $2.50 (paperback)

I suspected that David Eddings's *Pawn of Prophecy* was going to be one of those dreadful Tolkien imitations. It is book one of five that will take place in a created world with countries that have names such as Cthol Murgos, and it opens with a creation myth of gods and men that smacks more than a little of the Silmarillion.

There's no denying the Tolkien influence is there, but Eddings manages a quality of his own as well, enough to give the book an individual character. It follows the adventures of the orphan boy Garion, his guardian Aunt Pol, and the itinerant storyteller, Mister Wolf. It's not to spoil anything, I think, to reveal that early on it becomes obvious that Pol and Wolf are more than they seem; they are, in fact, survivors of the ancient times, the sorcerer Belgarath and his daughter. It soon also becomes obvious to everybody but Garion that he is himself Somebody, since Wolf suddenly sweeps Garion and Pol away from the isolated farm where they have been living into a journey that is part flight, part quest.

All of this action is set against the great events of the early days, when mankind was divided into the followers of the six Gods and those who worshipped the Apostate god, Torak. Wolf is protecting Garion from representatives of the nations of the latter and searching for a precious artifact stolen by them.

The use of magic is sparing here, and at least so far there are no unhuman races. A light touch prevails in the novel, and Eddings is particularly good at drawing characters that are intelligent, good-humored, and likable, particularly Silk and Barak—a sort of Fafhrd and Grey Mouser act who join the travellers and who are also Not What They Seem. Then there are the five kings (of the good-guy kingdoms), whom we meet later in the book; they are a varied and colorful lot.

Despite its leisurely pace, *Pawn of Prophecy* has a strong narrative, with an emphasis on suspense and adventure rather than thud-and-blunder. It perhaps can be faulted for its low-

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key use of fantasy elements, but that could change in the ensuing volumes of the series, which I will certainly keep up on. It's good to know there's a new series with such great promise. ●

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IAsfm Puzzle #2

by Merl H. Reagle

BRITISH TREASURES

ACROSS

1 Restorative therapy, for short
6 Word with pen or pet
10 Start of a Bradbury anthology
13 _____a minute
14 Prominent
15 Crab-eating macaque
16 Sign of 1973
17 Still controversial scientific topic
19 See 6 Down
21 Little louse
22 Dim type
23 "A_____lama is a priest"
—Ogden Nash
24 Attends
27 Propelled
30 Gypsy's horse
31 Loser's shout
32 Failed against
34 "_____to Come" (see 6 Down)
38 Author Lofts and others
39 "_____d'Arthur"
41 Jacuzzi joint
44 Masculine force, in China
45 Pickup on a pickup?
46 Singer
48 Team for emergencies
50 Overly scientific-sounding
51 See 6 Down
56 Part of heroes' motto
57 Wind-driven
59 Sheet, as of paper: Fr.
60 Sagan's namesakes
61 Prefix meaning "pressure"
62 Dix and Knox: abbr.
63 Signs
64 Outbreak

DOWN

1 Took off
2 Robot's shortcomings
3 Modern decorating
4 Wasp's wings
5 Like a Hugo winner
6 ?
7 Physics experiments of the '40s
8 Italian apple
9 Part of NEA
10 Recreation on runners
11 Depresser?
12 With one's wits
14 SF aquaculturalist
18 E'en if
20 Famous last words?
21 Quoc-_____, Vietnamese-English writing system
25 A.E. van Vogt classic
26 Small, three-legged stand
28 Ultimate
29 Countdown terminology
32 Creditor with teeth
33 _____ about
35 Mesozoic or Pleistocene
36 Frying surfaces
37 Astronomer's concern
40 TV Tarzan
41 Cut down to size or bid bon voyage
42 Krypton or Alderaan
43 Agamemnon's father
45 _____Z

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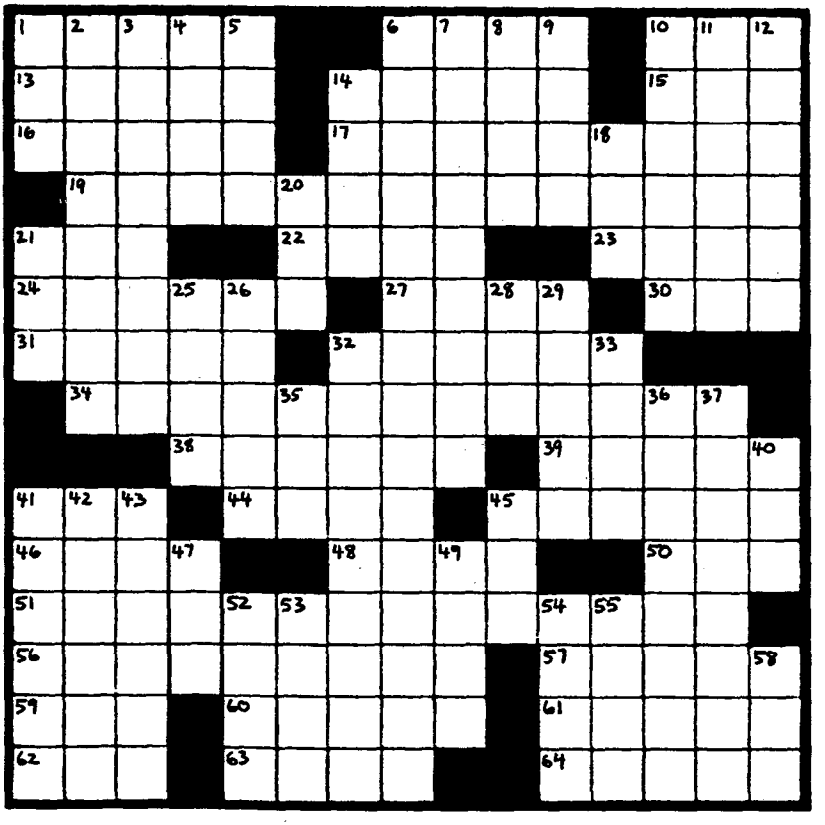
Solution on page 73

47 Slangy money or Batman sound effect
49 Leather-worker's tools
52 Central points
53 Part of bus-system names
54 Confiscated item, for short
55 Meat cut
58 Soldier's resting place



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VIEWPOINT

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WHY JOHNNY DOESN'T LIKE SCIENCE

art: Richard Crist

Lewis Thomas, M.D., wrote *Lives of a Cell* in 1974 and won the American Book Award last year for *The Medusa and the Snail.* He is chancellor of Memorial Sloan-Kettering Cancer Center and chairman of the board of the Scientists' Institute for Public Information. This article is adapted from a talk given at a conference sponsored by the Alfred P. Sloan Foundation.

by Lewis Thomas

Everyone seems to agree that there is something wrong with the way science is being taught these days. But no one is at all clear about when it went wrong or what is to be done about it. The term "scientific illiteracy" has become almost a cliché in educational circles. Graduate schools blame the colleges; colleges blame the secondary schools; the high schools blame the elementary schools, which, in turn, blame the family.

I suggest that the scientific community itself is partly, perhaps largely, to blame. Moreover, if there are disagreements

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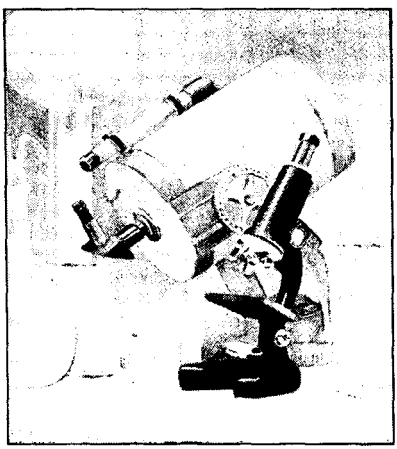

"The education of humanists cannot be regarded as complete, or even adequate, unless they are exposed in some depth to where things stand in the various branches of science."

between the world of the humanities and the scientific enterprise as to the place and importance of science in a liberal-arts education and the role of science in 20th-century culture, I believe that the scientists are themselves responsible for a general misunderstanding of what they are really up to.

During the last half-century, we have been teaching the sciences as though they were the same collection of academic subjects as always, and—here is what has really gone wrong—as though they would always be the same. Students learn today's biology, for example, the same way we learned Latin when I was in high school long ago: first, the fundamentals; then, the underlying laws; next, the essential grammar; and, finally, the reading of texts. Once these were mastered, that was that: Latin was Latin and forever after would always be Latin. History, once learned, was history. And biology was precisely biology, a vast array of hard facts to be learned as fundamentals, followed by a reading of the texts.

Furthermore, we have been teaching science as if its facts

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were somehow superior to the facts in all other scholarly disciplines — more fundamental, more solid, less subject to subjectivism, immutable. English literature is not just one way of thinking; it is all sorts of ways; poetry is a moving target; the facts that underlie art, architecture, and music are not really hard facts, and you can change them any way you like by arguing about them. But science, it appears, is an altogether different kind of learning: an unambiguous, unalterable, and endlessly useful display of data that only need to be packaged and installed somewhere in one's temporal lobe in order to achieve a full understanding of the natural world.

And, of course, it is not like this at all. In real life, every field of science is incomplete, and most of them—whatever the record of accomplishment during the last 200 years — are still in their very earliest stages. In the fields I know best, among the life sciences, it is required that the most expert and sophisticated minds be capable of changing course—often with a great lurch—every few years. In some branches of biology the mind-changing is occurring with accelerating velocity. Next week's issue of any scientific journal can turn a whole field upside down, shaking out any number of immutable ideas and installing new bodies of dogma. This is an almost everyday event in physics, in chemistry, in materials research, in neurobiology, in genetics, in immunology.

On any Tuesday morning, if asked, a good working scientist will tell you with some self-satisfaction that the affairs of his field are nicely in order, that things are finally looking clear and making sense, and all is well. But come back again on another Tuesday, and the roof may have just fallen in on his life's work. All the old ideas —last week's ideas in some cases—are no longer good ideas. The hard facts have softened, melted away, and vanished under the pressure of new hard facts. Something strange has happened. And it is this very strangeness of nature that makes science engrossing, that keeps bright people at it, and that ought to be at the center of science teaching.

The conclusions reached in science are always, when looked

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photo: Helen Marcus 1979

"I believe that the worst thing that has happened to science education is that the fun has gone out of it. A great many students look at it as work to be got through on the way to medical school."

at closely, far more provisional and tentative than are most of the assumptions arrived at by our colleagues in the humanities. But we do not talk much in public about this, nor do we teach this side of science. We tend to say instead: These are the facts of the matter, and this is what the facts signify. Go and learn them, for they will be the same forever.

By doing this, we miss opportunity after opportunity to recruit young people into science, and we turn off a good many others who would never dream of scientific careers but who emerge from their education with the impression that science is fundamentally boring.

Sooner or later, we will have to change this way of presenting science. We might begin by looking more closely at the common ground that science shares with all disciplines, particularly with the humanities and with social and behavioral science. For there is indeed such a common ground. It is called bewilderment. There are more than seven times seven types of ambiguity in science, all awaiting analysis. The poetry of Wallace Stevens is crys-

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tal clear alongside the genetic code.

One of the complaints about science is that it tends to flatten everything. In its deeply reductionist way, it is said, science removes one mystery after another, leaving nothing in the place of mystery but data. I have even heard this claim as explanation for the drift of things in modern art and modern music: Nothing is left to contemplate except randomness and senselessness; God is nothing but a pair of dice, loaded at that. Science is linked somehow to the despair of the twentieth-century mind. There is almost nothing unknown and surely nothing unknowable. Blame science.

I prefer to turn things around in order to make precisely the opposite case. Science, especially 20th-century science, has provided us with a glimpse of something we never really knew before, the revelation of human ignorance. We have been accustomed to the belief, from one century to another, that except for one or two mysteries we more or less comprehend everything on earth. Every age, not just the 18th century, regarded itself as the Age of Reason, and we have never lacked for explanations of the world and its ways. Now, we are being brought up short. We do not understand much of anything, from the episode we rather dismissively (and, I think, defensively) choose to call the "big bang," all the way down to the particles in the atoms of a bacterial cell. We have a wilderness of mystery to make our way through in the centuries ahead. We will need science for this but not science alone. In its own time, science will produce the data and some of the meaning in the data, but never the full meaning. For perceiving real significance when significance is at hand, we will need all sorts of brains outside the fields of science.

It is primarily because of this need that I would press for changes in the way science is taught. Although there is a perennial need to teach the young people who will be doing the science themselves, this will always be a small minority. Even more important, we must prove it, say. This is a different matter from searching for information to use against schiz-

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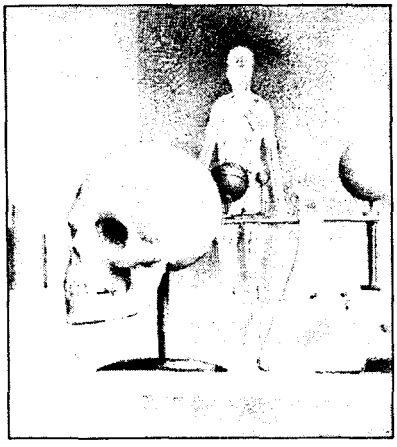

"In real life, every field of science is incomplete, and most of them—whatever the record of accomplishment during the last two hundred years—are still in their very earliest stages."

ophrenia or dementia, where we are badly in need of technologies, indeed likely one day to be sunk without them. But the ordinary, everyday, more or less normal human mind is too marvelous an instrument ever to be tampered with by anyone, science or no science.

The education of humanists cannot be regarded as complete, or even adequate, unless they are exposed in some depth to where things stand in the various branches of science, particularly, as I have said, in the areas of our ignorance. Physics professors, most of them, look with revulsion on assignments to teach their subject to poets. Biologists, caught up by the enchantment of their new power, armed with flawless instruments to tell the nucleotide sequences of the entire human genome, nearly matching the physicists in the precision of their measurements of living processes, will resist the prospect of broad survey courses; each biology professor will demand that any student in his path master every fine detail within that professor's research program.

The liberal-arts faculties, for

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their part, will continue to view the scientists with suspicion and apprehension. "What do the scientists want?" asked a Cambridge professor in Francis Cornford's wonderful *Microcosmographia Academica*. "Everything that's going," was the quick answer. That was back in 1912, and scientists haven't much changed.

But maybe, just maybe, a new set of courses dealing systematically with ignorance in science will take hold. The scientists might discover in it a new and subversive technique for catching the attention of students driven by curiosity, delighted and surprised to learn that science is exactly as the American scientist and educator Vannevar Bush described it: an "endless frontier." The humanists, for their part, might take considerable satisfaction in watching their scientific colleagues confess openly to not knowing everything about everything. And the poets, on whose shoulders the future rests, might, late nights, thinking things over, begin to see some meanings that elude the rest of us. It is worth a try.

I believe that the worst thing that has happened to science education is that the fun has gone out of it. A great many good students look at it as slogging work to be got through on the way to medical school. Others are turned off by the premedical students themselves, embattled and bleeding for grades and class standing. Very few recognize science as the high adventure it really is, the wildest of all explorations ever taken by human beings, the chance to glimpse things never seen before, the shrewdest maneuver for discovering how the world works. Instead, baffled early on, they are misled into thinking that bafflement is simply the result of not having learned all the facts. They should be told that everyone else is baffled as well—from the professor in his endowed chair down to the platoons of postdoctoral students in the laboratories all night. Every important scientific advance that has come in looking like an answer has turned, sooner or later—usually sooner—into a question. And the game is just beginning.

If more students were aware of this, I think many of them

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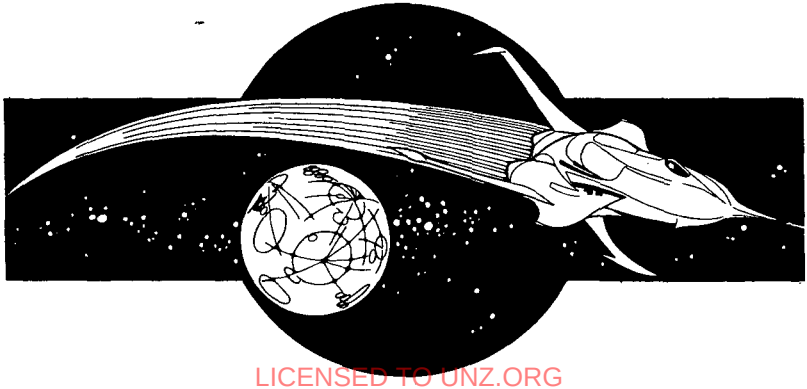
would decide to look more closely and to try to learn more about what *is* known. That is the time when mathematics will become clearly and unavoidably recognizable as an essential, indispensable instrument for engaging in the game, and that is the time for teaching it. The calamitous loss of applied mathematics from what we might otherwise be calling higher education is a loss caused, at least in part, by insufficient incentives for learning the subject. Left by itself, standing there among curriculum offerings, applied mathematics leaves students puzzled about what it is to be applied *to*. And there is all of science, next door, looking like an almost-finished field reserved only for chaps who want *to* invent or apply new technologies. We have had it wrong, and presented it wrong to class after class for several generations.

An appreciation of what is happening in science today, and how great a distance lies ahead for exploring, ought to be one of the rewards of a liberal-arts education. It ought to be good in itself, not something to be acquired on the way to a professional career but part of the cast of thought needed for getting into the kind of century that is now just down the road. Part of the intellectual equipment of an educated person, however his or her time is to be spent, ought to be a feel for the queernesses of nature, the inexplicable thing, the side of life for which informed bewilderment will be the best way of getting through the day. ●



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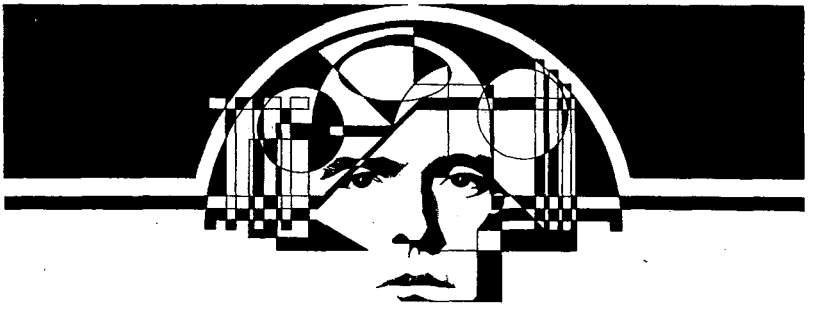
MARTIN GARDNER

DR. MOREAU'S MOMEATERS



"Who would have guessed," said Dr. Moreau III, a noted geneticist at Kings College, London, "that such a small alteration of the genetic code of this fish would produce such a big change? What shall we call the new species?"

"How about momeater?" suggested Montgomery, Dr. Moreau's assistant. Montgomery was a chimpanzee whose intelligence had been raised by genetic engineering to a level almost equal to that of Dr. Moreau himself.

Momeater was an appropriate name for the tiny fish because of its peculiar breeding habits. Each female produces exactly ten eggs, which hatch inside a pouch on the mother's underbelly. When the ten baby fish leave the pouch, a strange thing happens. They kill and devour the mother! Since gestation takes only a few days, and the fish live for years, a population of momeaters grows at an explosive rate.

Dr. Moreau put ten newly hatched momeaters in a large tank. "I want you to keep a careful count of them every day," Moreau said to Montgomery. "Let me know when the tank holds 5,000 fish."

Montgomery scratched his chest and thought a moment. "If you mean 5,000 precisely," he said, "it's not possible. Assuming no fish die, except of course the females eaten by the young, the closest we can get to 5,000 is 4,996."

Is Montgomery right? Or did he make a mistake in his calculations? The answer is on page 64.

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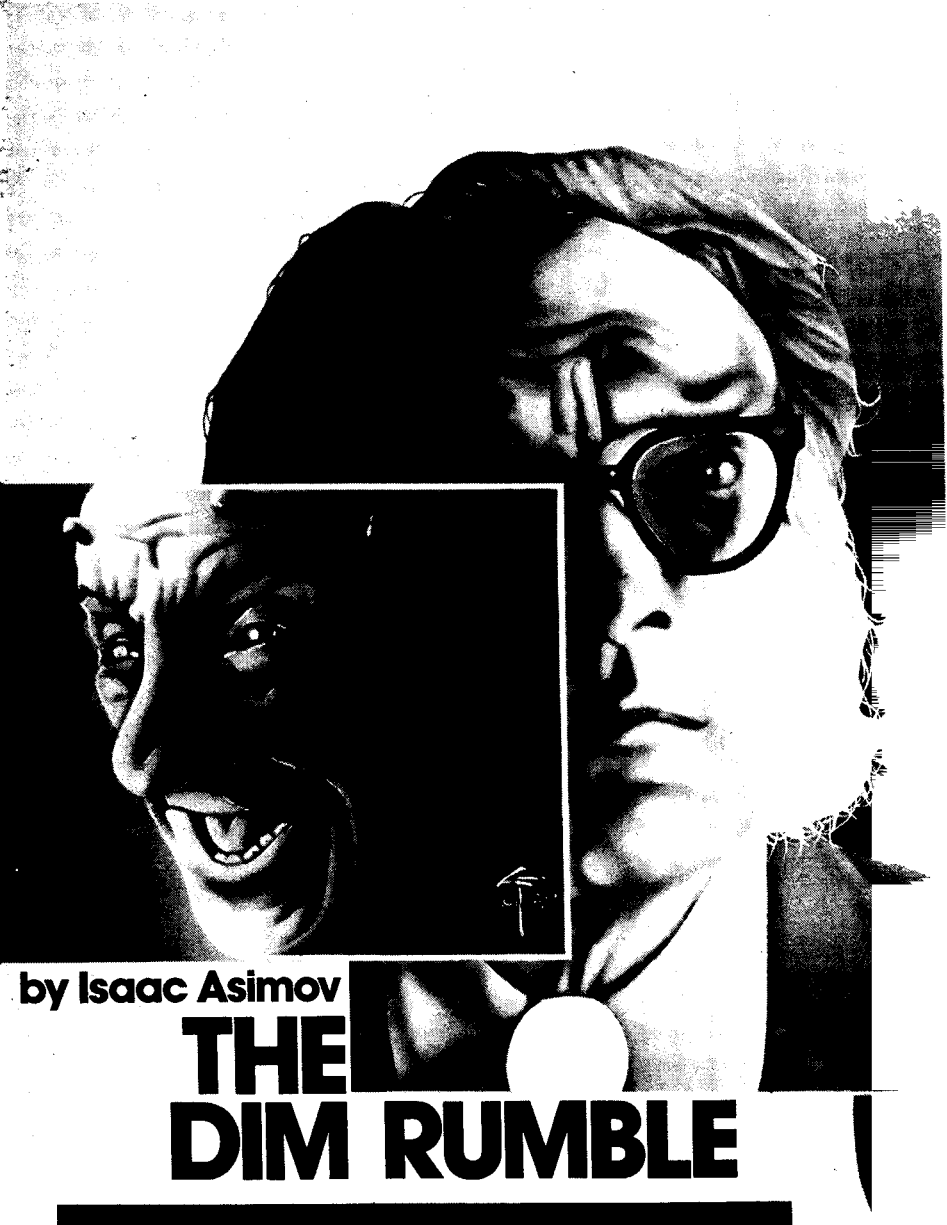

by Isaac Asimov

THE DIM RUMBLE

We all know that ultrasonic noise can be bad for our health. So what, therefore, can we assume will happen if the source of the noise is something <u>really</u> big? Here's the Good Doctor in top form, with another never-before-published story.

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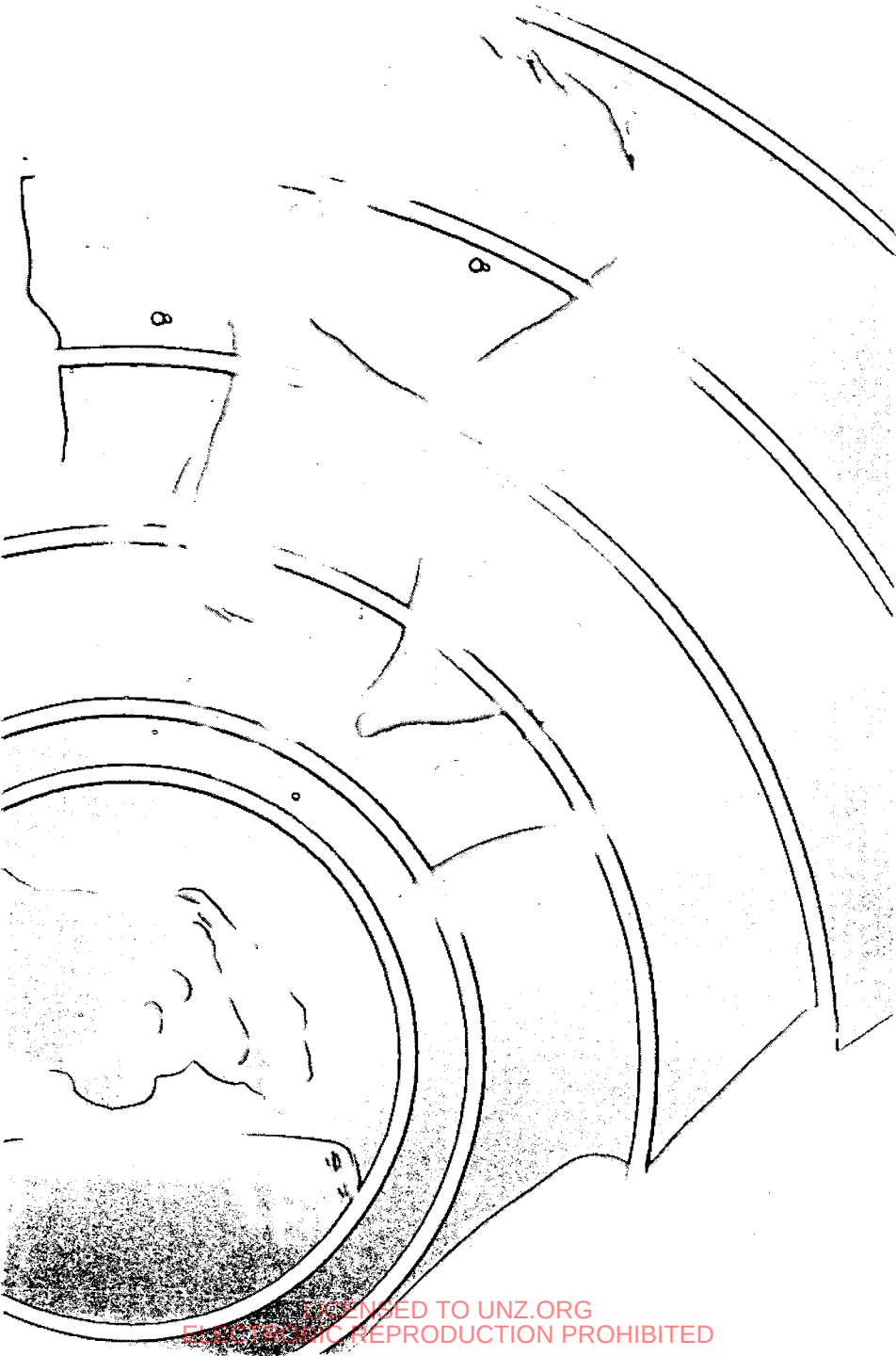

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I try hard not to believe what my friend George tells me. How can I possibly believe a man who tells me he has access to a two-centimeter-tall demon he calls Azazel, a demon who is really an extraterrestrial personage of extraordinary—but strictly limited—powers?

And yet George does have this ability to gaze at me unblinkingly out of his blue eyes and make me believe him temporarily—while he's talking. It's the Ancient Mariner effect, I suppose.

I once told him that I thought his little demon had given him the gift of verbal hypnosis, but George sighed and said, "Not at all! If he has given me anything, it is a curse for attracting confidences —except that that has been my bane since long before I ever encountered Azazel. The most extraordinary people insist on burdening me with their tales of woe. And sometimes—"

He shook his head in deep dejection. "Sometimes," he said, "the load I must bear as a result is more than human flesh and blood should be called upon to endure. Once, for instance, I met a man named Hannibal West . . .

I noticed him first [said George] in the lounge of a hotel at which I was staying. I noticed him chiefly because he encumbered my view of a statuesque waitress who was most becomingly and insufficiently dressed. I presume he thought I was looking at him, something I would certainly not willingly have done, and he took it as an overture of friendship.

He came to my table, bringing his drink with him, and seated himself without a by-your-leave. I am, by nature, a courteous man, and so I greeted him with a friendly grunt and glare, which he accepted in a calm way. He had sandy hair, plastered down across his scalp; pale eyes and an equally pale face; and the concentrated gaze of a fanatic, though I admit I didn't notice that until later on.

"My name," he said, "is Hannibal West, and I am a professor of geology. My particular field of interest is speleology. You wouldn't, by any chance, be a speleologist yourself?"

I knew at once he was under the impression he had recognized a kindred soul. My gorge rose at the possibility, but I remained courteous. "I am interested in all strange words," I said. "What is speleology?"

"Caves," he said. "The study and exploration of caves. That is my hobby, sir. I have explored caves on every continent except Antarctica. I know more about caves than anyone in the world."

"Very pleasant," I said, "and impressive." Feeling that I had in this way concluded a most unsatisfactory encounter, I signalled for

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the waitress to renew my drink and watched, in scientific absorption, her undulating progress across the room.

Hannibal West did not recognize that our conversation had been concluded, however. "Yes," he said, nodding vigorously, "you do well to say it is impressive. I have explored caves that are unknown to the world. I have entered underground grottoes that have never felt the footsteps of a human being. I am one of the few people alive today who has gone where no man, or woman, for that matter, has ever gone before. I have breathed air undisturbed, till then, by the lungs of a human being, and have seen sights and heard sounds no one else has ever seen or heard—and lived." He shuddered.

My drink had arrived, and I took it gratefully, admiring the grace with which the waitress bent low to place it on the table before me. I said, my mind not really on what I was saying, "You are a fortunate man."

"That I am not," said West. "I am a miserable sinner called upon by the Lord to avenge the sins of humanity."

Now at last I looked at him sharply, and noted the glare of fanaticism that nearly pinned me to the wall. "In caves?" I asked.

"In caves," he said, solemnly. "Believe me. As a professor of geology, I know what I am talking about."

I had met numerous professors in my lifetime who had known no such thing, but I forebore mentioning the fact.

Perhaps West read my opinion in my expressive eyes, for he fished a newspaper clipping out of a briefcase at his feet and passed it over to me. "Here!" he said, "Just look at that!"

I cannot say that it much rewarded close study. It was a three-paragraph item from some local newspaper. The headline read "A Dim Rumble" and the dateline was East Fishkill, New York. It was an account to the effect that local residents had complained to the police department of a dim rumble that left them uneasy and caused much disturbance among the cat and dog population of the town. The police had dismissed it as the sound of a distant thunderstorm, though the weather department heatedly denied that there had been any that day anywhere in the region.

"What do you think of *that?*" asked West.

"Might it have been a mass epidemic of indigestion?"

He sneered as though the suggestion were beneath contempt, though no one who has ever experienced indigestion would consider it that. Beneath the diaphragm, perhaps.

He said, "I have similar news items from papers in Liverpool, England; Bogota, Colombia; Milan, Italy; Rangoon, Burma; and per-

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haps half a hundred other places the world over. I collected them. All speak of a pervasive dim rumble that created fear and uneasiness and drove animals frantic, and all were reported within a two-day period."

"A single world-wide event," I said.

"Exactly! Indigestion, indeed." He frowned at me, sipped at his drink, then tapped his chest. "The Lord has placed a weapon in my hand, and I must learn to use it."

"What weapon is this?" I asked.

He didn't answer directly. "I found the cave quite by accident," he said, "something I welcome, for any cave whose opening advertises itself too openly is common property and has been host to thousands. Show me an opening narrow and hidden, one that is overgrown with vegetation, obscured by fallen rocks, veiled by a waterfall, precariously placed in an all but inaccessible spot, and I will show you a virgin cave worthy of inspection. You say you know nothing of speleology?"

"I have been in caves, of course," I said. "The Luray caverns in Virginia—"

"Commercial!" said West, screwing up his face and looking about for a convenient spot on the floor upon which to spit. Fortunately, he didn't find one.

"Since you know nothing about the divine joys of spelunking," he went on, swallowing instead, "I will not bore you with any account of where I found it, and how I explored it. It is, of course, not always safe to explore new caves without companions, but I perform solo explorations readily. After all, there is no one who can match me in this sort of expertise, to say nothing of the fact that I am as bold as a lion.

"In this case, it was indeed fortunate I was alone, for it would not have done for any other human being to discover what I discovered. I had been exploring for several hours when I entered a large and silent room with stalactites above and stalagmites below in gorgeous profusion. I skirted about the stalagmites, trailing my unwinding twine behind me, since I am not fond of losing my way, and then I came across what must have been a thick stalagmite that had broken off at some natural plane of cleavage. There was a litter of limestone to one side of it. What had caused the break I cannot say—perhaps some large animal, fleeing into the cave under pursuit, had blundered into the stalagmite in the dark; or else a mild earthquake had found this one stalagmite weaker than the others.

"In any case, the stump of the stalagmite was now topped by a

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smooth flatness just moist enough to glisten in my electric light. It was roughly round and strongly resembled a drum. So strongly did it resemble one that I automatically reached out and tapped it with my right forefinger."

He gulped down the rest of his drink and said, "It *was* a drum; or at least it was a structure that set up a vibration when tapped. As soon as I touched it, a dim rumble filled the room, a vague sound just at the threshold of hearing and all but subsonic. Indeed, as I was able to determine later on, the portion of the sound that was high enough in pitch to be heard was a tiny fraction of the whole. Almost all the sound expressed itself in mighty vibrations far too long-wave to affect the ear, though it shook the body itself. That unheard reverberation gave me the most unpleasantly uneasy feeling you can imagine.

"I had never encountered such a phenomenon before. The energy of my touch had been minute. How could it have been converted into such a mighty vibration? I have never managed to understand that completely. To be sure, there are powerful energy sources underground. There could be a way of tapping the heat of the magma, converting a small portion of it to sound. The initial tap could serve to liberate additional sound energy—a kind of sonic laser, or, if we substitute 'sound' for 'light' in the acronym, we can call it 'saser.' "

I said, austerely, "I've never heard of such a thing."

"No," said West, with an unpleasant sneer, "I dare say you haven't. It is nothing anyone has heard of. Some combination of geologic arrangements has produced a natural saser. It is something that would not happen, by accident, oftener than once in a million years, perhaps, and even then in only one spot on the planet. It may be the most unusual phenomenon on Earth."

"That's a great deal," I said, "to deduce from one tap of a forefinger."

"As a scientist, sir, I assure you I was not satisfied with a single tap of a forefinger. I proceeded to experiment. I tried harder taps and quickly realized that I could be seriously damaged by the reverberations in the enclosure. I set up a system whereby I could drop pebbles of various sizes on the saser, while I was outside the cave, by means of a makeshift long-distance apparatus. I discovered that the sound could be heard surprising distances outside the cave. Using a simple seismometer, I found that I could get distinct vibrations at distances of several miles. Eventually, I dropped a series of pebbles one after the other, and the effect was cumulative."

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I said, "Was that the day when dim rumbles were heard all over the world?"

"Exactly," he said. "You are by no means as mentally deprived as you appear. The whole planet rang like a bell."

"I've heard that particularly strong earthquakes do that."

"Yes, but this saser can produce a vibration more intense than that of any earthquake and can do so at particular wavelengths; at a wavelength, for instance, that can shake apart the contents of cells—the nucleic acids of the chromosomes, for instance."

I considered that, thoughtfully. "That would kill the cell."

"It certainly would. That may be what killed the dinosaurs."

"I've heard it was done by the collision of an asteroid with the Earth."

"Yes, but in order to have that done by ordinary collision, the asteroid postulated must be huge—ten kilometers across. And one must suppose dust in the stratosphere, a three-year winter, and some way of explaining why some species died out and others didn't in a most illogical fashion. Suppose, instead, that it was a much smaller asteroid that struck a saser and that it disrupted cells with its sound vibration. Perhaps ninety percent of the cells in the world would be destroyed in a matter of minutes with no enormous effect on the planetary environment at all. Some species would manage to survive—some would not. It would be entirely a matter of the intimate details of comparative nucleic acid structure."

"And that," I said, with a most unpleasant feeling that this fanatic was serious, "is the weapon the Lord has placed into your hands?"

"Exactly," he said, "I have worked out the exact wavelengths of sound produced by various manners of tapping the saser and I am trying now to determine which wavelength would specifically disrupt human nucleic acids."

"Why human?" I demanded.

"Why not human?" demanded he, in his turn. "What species is crowding the planet, destroying the environment, eradicating other species, filling the biosphere with chemical pollutants? What species will destroy the Earth and render it totally non-viable in a matter of decades, perhaps? Surely not some other than *Homo sapiens*? If I can find the right sonic wavelength, I can strike my saser in the proper manner, and with the proper force, to bathe the Earth in sonic vibrations that will, in a matter of a day or so, for it takes time for sound to travel, wipe out humanity, while scarcely touching other life-forms with nucleic acids of differing intimate structure."

I said, "You are prepared to destroy billions of human beings?"

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"The Lord did it by means of the Flood—"

"Surely you don't believe the Biblical tale of the Flood?"

West said austerely, "I am a creationist geologist, sir."

I understood everything. "Ah," I said. "The Lord promised he would never again send a Flood upon the Earth, but he didn't say anything about sound waves."

"Exactly! The billions of dead will fertilize and fructify the Earth, serve as food for other forms of life who have suffered much at the hands of humanity and who deserve compensation. What's more, a remnant of humanity shall undoubtedly survive. There are bound to be a few human beings who will have nucleic acids of a type that will not be sensitive to the sonic vibrations. That remnant, blessed by the Lord, can begin anew, and will perhaps have learned a lesson as to the evil of Evil, so to speak."

I said, "Why are you telling me all this?" And indeed, it had occurred to me that it was strange that he was doing so.

He leaned toward me and seized me by the lapel of my jacket—a most unpleasant experience, for his breath was rather overpowering—and said, "I have the inner certainty that you can help me in my work."

"I?" I said. "I assure you that I haven't any knowledge whatsoever concerning wavelengths, nucleic acids, and—" But then, bethinking myself rapidly, I said, "Yet come to think of it, I may have just the thing for you." And in a more formal voice, with the stately courtesy so characteristic of me, I said, "Would you do me the honor, sir, of waiting for me for perhaps fifteen minutes?"

"Certainly, sir," he answered, with equal formality. "I will occupy myself with further abstruse mathematical calculations."

As I hastened out of the lounge, I passed a ten-dollar bill to the bartender with a whispered, "See that that gentleman, if I may speak loosely, does not leave until I return. Feed him drinks and put it on my tab, if absolutely necessary."

I never fail to carry with me those simple ingredients I use to call up Azazel and, in a very few minutes, he was sitting on the bed lamp in my room, suffused with his usual tiny pink glow.

He said, censoriously, in his piping little voice, "You interrupted me when I was in the midst of constructing a papparatso with which I fully expected to win the heart of a lovely samini."

"I regret that, Azazel," I said, hoping he would not delay me by describing the nature of the papparatso or the charms of the samini, for neither of which I cared the paring of a fingernail, "but I have here a possible emergency of the most extreme sort."

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"You always say that," he said, discontentedly.

Hastily, I outlined the situation, and I must say he grasped it at once. He is very good that way, never requiring long explanations. My own belief is that he peeks at my mind, although he always assures me that he considers my thoughts inviolable. Still, how far can you trust a two-centimeter extraterrestrial who, by his own admission, is constantly trying to overreach lovely saminis, whatever they are, by the most dishonorable ruses? Besides, I'm not sure whether he says he considers my thoughts inviolable or insufferable; but that is neither here nor there.

"Where is this human being you speak of?" he squeaked.

"In the lounge. It is located—"

"Don't bother. I shall follow the aura of moral decay. I think I have it. How do I identify the human being?"

"Sandy hair, pale eyes—"

"No, no. His mind."

"A fanatic."

"Ah, you might have said so at once. I have him—and I see I shall require a thorough steam-bath when I return home. He is worse than you are."

"Never mind that. Is he telling the truth?"

"About the saser? Which, by the way, is a clever conceit."

"Yes."

"Well, that is a difficult question. As I often say to a friend of mine who considers himself a great spiritual leader: What is truth? I'll tell you this; he considers it the truth. He believes it. What a human being believes, however, no matter with what ardor, is not necessarily objective truth. You have probably caught a hint of this in the course of your life."

"I have. But is there no way you can distinguish between belief that stems from objective truth and belief that does not?"

"In intelligent entities, certainly. In human beings, no. But apparently you consider this man an enormous danger. I can rearrange some of the molecules of his brain, and he will then be dead."

"No, no," I said. It may be a silly weakness on my part, but I do object to murder. "Couldn't you rearrange molecules in such a way that he will lose all memory of the saser?"

Azazel sighed in a thin, wheezing way. "That is really much more difficult. Those molecules are heavy and they stick together. Really, why not a clean disruption—"

"I insist," I said.

"Oh, very well," said Azazel, sullenly, and then he went through

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a whole litany of puffing and panting designed to show me how hard he was working. Finally, he said, "It's done."

"Good. Wait here, please. I just want to check it out, and then I'll be right back."

I rushed down hastily, and Hannibal West was still sitting where I had left him. The bartender winked at me as I passed. "No drinks necessary, sir," said that worthy person, and I gave him five dollars more.

West looked up cheerfully. "There you are."

"Yes, indeed," I said. "Very penetrating of you to notice that. I have the solution to the problem of the saser."

"The problem of the what?" he asked, clearly puzzled.

"That object you discovered in the course of your speleological explorations."

"What are speleological explorations?"

"Your investigations of caves."

"Sir," said West, frowning, "I have never been in a cave in my life. Are you mad?"

"No, but I have just remembered an important meeting. Farewell, sir. Probably, we shall never meet again."

I hastened back to the room, panting a little, and found Azazel humming to himself some tune favored by the entities of his world. Really, their taste in what they call music is atrocious.

"His memory is gone," I said, "and, I hope, permanently."

"Of course," said Azazel. "The next step, now, is to consider the saser itself. Its structure must be very neatly and precisely organized if it can actually magnify sound at the expense of Earth's internal heat. No doubt, a tiny disruption at some key point—something that may be within my mighty powers—could wipe out all saser activity. Exactly where is it located?"

I stared at him, thunderstruck. "How should I know?" I said.

He stared at me, probably thunderstruck also, but I can never make out the expressions on his tiny face. "Do you mean to say you had me wipe out his memory *before* you obtained that vital piece of information?"

"It never occurred to me," I said.

"But if the saser exists, if his belief was based on objective truth, someone else may stumble upon it, or a large animal might, or a meteorite might strike it—and at any moment, day or night, all life on Earth may be destroyed."

"Good Lord!" I muttered.

Apparently my distress moved him, for he said, "Come, come, my

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friend, look at the bright side. The worst that can happen is that human beings will all be wiped out. Just human beings. It's not as though they're *people.*"

Having completed his tale, George said, despondently, "And there you are. I have to live with the knowledge that the world may come to an end at any moment."

"Nonsense," I said, heartily, "Even if you've told me the truth about this Hannibal West, which, if you will pardon me, is by no means assured, he may have been having a sick fantasy."

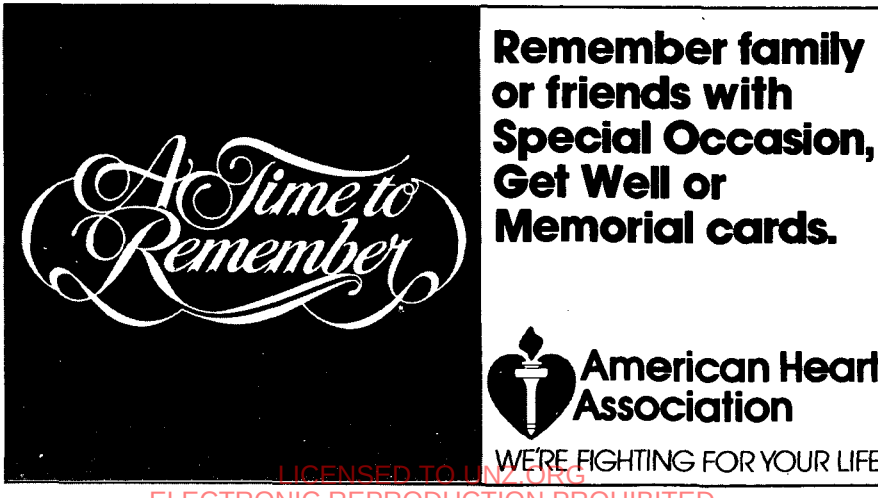
George looked haughtily down his nose at me for a moment, then said, "I would not have your unlovely tendency toward skepticism for all the loveliest saminis on Azazel's native world. How do you explain this?"

He withdrew a small clipping from his wallet. It was from yesterday's New York *Times* and was headed "A Dim Rumble." It told of a dim rumble that was perturbing the inhabitants of Grenoble, France.

"One explanation, George," I said, "is that you saw this article and made up the whole story to suit."

For a moment, George looked as though he would explode with indignation, but when I picked up the rather substantial check that the waitress had placed between us, softer feelings overcame him, and we shook hands on parting, amiably enough.

And yet I must admit I haven't slept well since. I keep sitting up at about 2:30 A.M., listening for the dim rumble I could swear had roused me from sleep. ●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George Guthridge is a full-time writer who resides in McCleary, Washington. His work has appeared in *Analog*, *F & SF*, and *Galaxy*. "Triangle," which appeared in the August 1982 issue of this magazine, was written by him in collaboration with Dianne M. Thompson.

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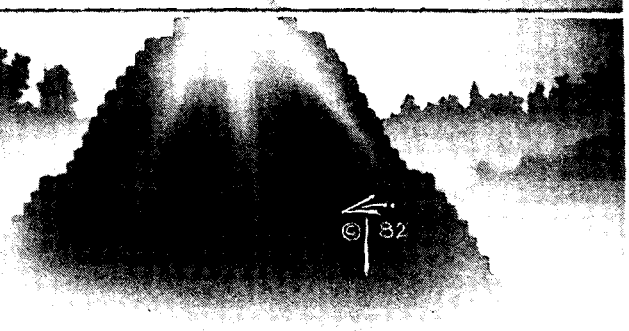
Mr. Perry made his last appearance in these pages in the November 1979 issue with "Flamegame." Since then he's been busy writing his first novel, *The Tularemia Gambit*, published last summer by Fawcett.

by George Florance-Guthridge & Steve Perry

JOHNNY BEERCANS



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I lit the fuse and was about to dynamite the salmon when I saw the two Wanderers.

I was standing in the shadows where the Pacific cuts in among the rock cliffs. The narrow, deep inlet was full of king salmon; I could feel the fish in my blood. It would be a good catch. I glanced up and saw two people at the edge of the high cliff on the other side of the cove, framed by the sun. I couldn't see them clearly—the light was too strong—but I knew them to be strangers, refugees, not my people.

I stood looking a moment too long, my mouth open and the sea slapping at my bare feet, before tossing the two taped-together sticks. They barely touched the water; then thunder and spray made the world stand still.

When I looked up at the Wanderers again, I was on my back in the damp sand. The misty air was spangling with sunlight. I tried to stagger to my feet. My legs buckled, and I toppled forward, toward the sea.

Wetness hit my face. Cold.

Darkness came.

"Johnny?" It was Jawda's voice, but distant. "Johnny Beercans!" Someone was patting my cheeks.

I opened my eyes and blinked. My house came into focus around me. I was lying on the blankets of cedar bark; the room smelled of musty olachen oil, slightly rancid. Jawda's face, her eyes deep with concern, loomed above me. Behind her stood a blond-haired white boy, his shirt and cotton pants wet and crusted lightly with sand. Next to him was a woman with deep sallow cheeks, red almond-shaped eyes and impossibly long lashes. Her hair was a bright-red cascade that tumbled over her shoulders. She was not human, the woman: an alien. I had thought all the aliens were dead.

Pain sliced through my head as I tried to sit up. I clutched my temples and fell back. That only made it worse.

"Easy," Jawda said. "You probably have a concussion. The boy here had to dive in after you."

I tried to thank him but managed only a groan. I felt nauseated.

"He'll be all right," Jawda said to the two. "You can go."

The creaking of the door was as loud as the hinges of hell, and the thunder of its closing sounded like my dynamite. I felt Jawda's muscular hands on my shoulders. "Rest, Johnny." She removed the halibut vertebrae from my braids and combed my hair with her fingers. "I'll watch over you."

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Again, darkness. But in it a face pulsed, a face with red almond-shaped eyes and even redder hair.

"We crossed the Fraser at Prince George," he said. His name was Denny—so very American, that name—but even though he had saved my life, I thought of him as "he." To the others in my village he was "that damn white boy." We had been a long time without strangers.

"The bridge was out, but we found a boat. There seemed to have been fighting there. I didn't know it had come this far north."

We sat on the beach. He picked up a fistful of sand and tried to let it trickle from his grip. The sand, too wet, fell in small clumps. The alien woman's head was in his lap, her electric red eyes closed, her cheeks shiny with moisture. The loose silvery gown she wore billowed in the breeze.

"After that we followed the Nechako through the Hazelton Mountains, then down along Gardner Inlet. I had part of a map. We were trying to make Prince Rupert, but somehow we got turned around. So here we are, among you Kwakiutl." He gave me a small smile.

"Among the *Nimkis,*" I corrected. "The other tribes are . . . no more. All dead." I gazed toward the sea. The waves slipped from beneath the fog like herring escaping from a cuttlefish rake. Gulls circled, cawing, above the breakers.

"I hated the mountains," the woman said quietly, without opening her eyes. "They were even worse than your empty cities. So dark and damp beneath those trees! We had to sleep underneath wet leaves. Even when we'd make love . . . wet leaves." She shuddered. "Awful."

"Relánge!"

She snapped her eyes open and stared at Denny. "Well, how do you expect me to feel? You'd roll me over onto you and . . . "

He clamped his hand over her mouth, then suddenly screamed and jerked it away. "Damn!" He clutched his hand to his chest, but not before I saw blood welling from a deep gash on his palm. Redness started dripping onto the woman's forehead. She did not move from his lap. After a moment she closed her eyes again, then reached up to wipe the blood from her head. She touched her fingers to her mouth and, for the first time since I had met her, smiled.

Another gray day came. Fog wreathed the evergreens, and the mist was heavy with salt. The chill cut through my denim jacket. I had to keep wiping drizzle from my goggles as I welded. I had

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hauled my equipment up the pyramid to weld on more cans. Rainbows shimmered and sparks made tiny suns as the TIG welder burned. The pyramid, built entirely of beer cans, was fifty feet high, a third as tall as the Doug fir around it. Far below in the village, the shacks looked like glistening cookie sheets. Tendrils of chimney smoke were held down by the dampness.

People called the pyramid "Johnny's monument," though no one knew what it was commemorating. Even I didn't know. Sometimes, after I had been working all day on it, they'd call to me as I trudged back to my house. "How many feet today, Johnny?"

"How many cans?"

"Better get the moon out of the way!"

"Watch out for eagles, Johnny."

The kidding was good-natured, and I enjoyed it.

I guess I began the pyramid about the time the whites started bombing the aliens—and one another. I don't think there's any relationship between the two events; it's just when I started the thing. I'm sure I had a reason at the time, but the years have blurred my memory.

I started with the beer cans piled up behind the hovel George California calls the village bar. There was about half an acre full, maybe four or five feet high. Whites used to come up from Powell River and even as far south as Vancouver and ask George to let them rummage for collectibles. They probably thought they'd find treasures like Billy Beer or Gobels or Jax cans—and they would have, because now such cans are part of the pyramid. They would even offer him money, just to look. George—his name was George Salmonbear back then—always refused. "No, let 'em rest," he'd say. "They served honorably." The whites would walk away muttering about stupid drunken Indians, and George would laugh at them.

"Johnny?"

I looked up. Jawda was struggling up the tiers in the drizzle, a blue shawl around her shoulders, her big butt swinging like a horse's as she climbed. I shut off the TIG.

She halted two tiers down and held up five cans of a six pack still joined by the plastic collar. Her damp hair hung in lank strands, black with runners of gray. She pushed it out of her eyes. "George just got back from Ocean Falls," she said. "He says the sea's too rough to go any farther." She gestured toward the harbor. "He brought you more cans in a net behind the boat."

Cans. Ironic, that. The whites used to give us food stamps and welfare checks. Then the aliens landed; the Americans and Russians

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grew more and more suspicious of the aliens and one another—and the hard rain began. Now there are no whites to give us food; only Wanderers are left. The cities are deserted, ready to be ransacked. And we bring home beer cans.

"Did you give the two Wanderers a good send-off?"

She shook her head and climbed up another tier. She didn't look directly at me. I thought I saw something like fear in her eyes. "When we arrived at Ocean Falls, the alien woman wouldn't get out of the boat. She sat in the stern and refused to budge. I told George he should throw her out, but he wouldn't touch her. None of the men would—you know how they are. George said if I wanted her out of the catamaran so much, I should put her out myself."

She paused, stared down at her feet, and spoke in a quieter voice. "I . . . I couldn't bring myself to do it."

"And the white boy?"

"Oh, he was willing enough. He stood on the dock with that tattered carpetbag of his and called to her. I think he wanted to leave here as much—as much as . . . "

" . . . as much as you wanted the woman to leave?"

The fear in her eyes became anger, then fear again. She looked away, toward the village, the angularity of her acne-scarred face softened by something I didn't recognize. "George got drunk on the way back," she said. "He says he's going to take his chainsaw and build a canoe." She was silent a moment, and I watched the treetops blowing and Jawda's abalone-shell earrings fluttering in the wind. "When we got home with the boy and the alien woman, he took an axe to his boat."

"What?"

"He found a Kenmore washing machine he wanted to bring back, but there was no room in the boat with the woman and the white boy. Now he's chopping the hull to pieces."

That sounded like George. There would have been little use for the washer, anyway. The power from Kitimat had been out since six months before the war. The village generator broke down a year later, and no one had gotten around to fixing it. I had the portable I used for welding, but most of the village was without electricity.

"Maybe I should go talk to George."

Jawda took hold of my arm. "Don't go, Johnny."

I looked at her, surprised. "Why not?"

She fixed her gaze on mine, then looked down at the five cans she'd carried up. "The alien woman is there. She—I—there is something evil about her."

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"Don't be ridiculous." I gently pulled away from her grip. "Besides, she belongs to the white boy."

"Johnny . . . "

I went on down the pyramid.

Jawda and I didn't talk much after that. Once I saw her in front of her shack, cleaning her ought-six. I asked her if she was going to hunt deer. She nodded but didn't look up. I reminded her that eating venison can cause forgetfulness, but she only grunted and would not laugh. A few days later I saw her and Relánge walking along the beach and talking. Rain fell, drenching the two women, but they kept walking and talking. They seemed friendly.

Then rumors started. Jawda was eating a lot of venison lately, people said.

About a week later Relánge came to see me. I was inside the pyramid, positioning the mermaid hood ornament from George's boat next to my thunderbird mask. She told me that George was planning a grease feast in honor of the canoe he was building. I nodded and continued my work.

"It's beautiful in here," she said, leaning back against a ledge of angled cans. Sunbeams slatted between the loosely spaced tiers, and the pyramid's interior was aglint with dusty light. "It's like being in a metallic cathedral." Silvery shadows lay across her thin face like strips of tape. She had a young woman's body, but for all I knew of aliens' ages, she could have been sixteen or six hundred. I looked away when she noticed my stare. I used my sleeve to dust the thunderbird's beak.

"Where's your friend?" I asked, to ease the tension.

"Oh, you mean Denny? Resting. He wants to spend the afternoon making love on the beach, so he thought he should get some sleep first. Warm days are few here; he wants to take advantage of it."

I nodded and wiped at the thunderbird. Hearing her talk about making love with someone else bothered me.

"I had a long talk with Jawda," she said suddenly. "I told her about my homeworld." She gave me a coy smile, her eyes alight with intrigue.

"I saw you," I said.

"I know. I noticed you watching us. I knew you were wondering what we were talking about." She stepped toward me and slid soft long-fingered hands up to my shoulders. Her touch made me shiver with pleasure. "I thought you also might like to know how it is out there, among the stars."

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I stepped away, to rub at the thunderbird's wing. "We don't have much use for stars here, what with the fog and all." I chuckled.

She didn't laugh. My chuckle died abruptly. Again she touched my shoulders. "Don't you want to know about gleaming cities and the pleasures of high civilization?"

I took an unwelded can from a shelf and held it in front of her. With one hand I crushed the thin aluminum. "I already know about cities," I said.

She looked at me, then at the can. Then she turned and looked at her distorted reflection in the pyramid wall. "Jawda wanted to know," she said. "I grew hoarse from telling her. She wanted to know everything."

"I'm not Jawda," I said.

On the village dock George had forty or fifty thousand blankets, boxes of kelp containers filled with olachen oil, and stacks of dried chinook and halibut fillets, enough stuff to fill a warehouse. I was helping him stack the goods and cover them with tarps for the upcoming grease feast. No one had built a canoe in twenty years, and George intended to have a potlatch that people would talk about for another twenty.

White men never understood potlatching, though it had never been all that complex. Sometimes potlatches were held on festival days, and there were regular ones at different seasons. But anyone could call for a potlatch, for just about any reason. Sometimes they were only an excuse to party, with little or no serious competition; other times, one man might have it in for another. It was always a dishonor to lose, no matter how small the amount given away. And the rules were simple: whoever gave away the most, in the best style, won. It was the giving that was important. Sure, white men talked about giving, mostly at Christmas, but they didn't really understand. They had even made it illegal in Canada, for a time; holding a feast and giving away most of what you owned was actually a crime. It wasn't a crime any more, of course. There were few white men around to enforce such stupid laws. Without potlatching, how could a young man demonstrate his manhood against another young buck? How could old men show their craftiness and hard-earned wisdom? It was part of our way, as much as the salmon, and white men just didn't comprehend it.

Moving the goods from George's several shacks down to the docks was hard work, but I didn't mind. At least we'd stopped potlatching with white men's goods. That's what had happened after the war.

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It had been frantic, then. We had access to a lot of things the neutron bombs didn't destroy. People held gigantic potlatches and gave away CB radios and cases of Campbell's chicken noodle soup and boatloads of Tide. I never saw the honor in that, since everyone had equal access to the goods; but I was in the minority, so I kept my mouth shut. Then people started giving away Mazda RX-7s and Mack trucks and Greyhound buses. Since there aren't any roads to our village—or even to Kitimat or Ocean Falls, for that matter—they just gave the titles. Eventually they were potlatching big chunks of land—nobody was using it, after all—which is how George Salmonbear became George California and Grace Turtlefire became Antarctica Grace. Someone even tried to give New York City to Jawda. "I wouldn't mind being a place most people would only visit," she said. "But I wouldn't want to be a place constantly stuffed full of people." She stood before the crowd, looking at each of us in turn so that no one would miss her allusion or her anger. "You play foolishly, like children!"

At last people came to their senses and went back to the old-time potlatching. I admired Jawda for her stand, and that night we made love. We'd had sex together more times than I could remember, for she'd been my good-time woman for twenty years, even during my two marriages; but we'd never made *love* before. Her lips were never more supple, her flesh never warmer. When we finished, I smiled and said, "Thank you." That was as close as I'd ever come to telling a woman I loved her, and Jawda knew it.

The wonder gradually wore off, and we went back to old habits. She saved her passion for new lovers, and I saved mine for the welding and the times when the taking of salmon sang in my blood.

Jawda was up among the yellow cedar and yew trees now, on the slopes that belly down to the sea. I wondered if her increasing need to shoot blacktail was like my feeling for fishing or my pyramid. She had three gutted animals hanging head-down in her meat shack, the damp earth floor stained with their blood. I looked across the harbor toward the slopes, in the hope that I might see her stalking.

"Quickly! Help!"

I turned and saw the white boy running up the dock toward George and me. It only took him a few seconds to reach us.

"Come—come with me!"

I dropped the box of olachen oil containers. "What—?"

"It's Jawda! She's been hurt!"

A freezing pain went from my groin up my spine. We ran.

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Catawba Trail was a blurred corridor; we crossed the creek at Market-on-the-Meadow and sprinted for the hills.

We found her at the base of a redrock slide. Her face was a mass of blood and bruises, her eyes wide and fixed. Her wool shirt was torn, and under it was a gash that showed flesh and clotted blood.

A crowd began to gather, drawn by our frantic dash and the vibration of death. I picked up the ought-six lying next to her body, then knelt. Everyone was hushed. The wind blew against my cheek, making my skin tingle. I was aware, suddenly, of the throb of my heartbeat and of a hollow feeling. My mouth was parched, as dry as old bones. I trembled as I closed Jawda's eyes.

"There's a path along the ridge," George said. "She must have fallen."

"Maybe she was shooting at a blacktail and wasn't watching what she was doing," someone said.

"Maybe she had forgotten what she was doing," I said.

Silence.

The white boy knelt, his eyes asking permission to touch her. I was a stone. Finally, he reached out and moved her head from side to side. It was a boneless kind of motion, devoid of tension. He looked at the torn shirt, at the wound on her shoulder, and his lips tightened. He looked as white-faced as a white boy can get.

Two days later I covered my face with tallow and smeared it blue with indigo clay and buried Jawda at the base of a clump of five Alaskan spruce overlooking the sea. I told no one where. If you take someone's nail clippings, bits of clothing, or dirt dampened by the their urine or spit, place those things inside a human corpse, sew up all the body openings, seal them with pitch, and put the corpse in a tree, when the body decays and falls from the branches, the donor of the clippings will die. I didn't want anyone thinking of using Jawda for such sorcery. Though everyone loved Jawda, the coming of the Wanderers had changed us; things were different somehow.

That night I slept naked and alone in the rear of one of the communal shacks, separated from the others by a *mawitl* screen. There seemed an unvoiced consensus that I should be the chief mourner for Jawda. I bore the grief.

Beyond the screen some of the others sat around the glowing embers of a tired fire, quietly chanting. The smoky darkness was full of ghosts and memories, It was a long time before I slept.

I dreamed I dug up Jawda's body and reburied her in the pyramid,

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where the sunlight sometimes seeped between the tiers to strike the dirt at midday. Beer cans glimmered around me like cave crystals. Days came and went; storms came and went. The weathered shacks fell apart, and we remaining Nimkis vanished from the earth, leaving only the glittering pyramid, baked and washed clean of labels, standing among the cedar and white pine and scrub oak. It alone stood, a testimonial to a people whose bones had long since crumbled and been washed to the sea. Within that pyramid lived and watched the spirit of Jawda Twodogs, shawled in blue, her face acne-scarred and painted blue for love and grief; her spirit keeping alive the holiest of words, *Kwakiutl*: the People.

I awoke, sweating. The room was hot and smoky. I lay still, gripping the edges of the bed's woven yew sticks, afraid the house had somehow caught fire. My ears rang with the silence.

I sensed a presence beside me. I blinked and gazed up into a pair of red eyes. "Johnny," Relánge whispered, and her cool hand eased up my leg to my thigh. I shuddered but didn't move. Her lips touched my chest, then worked up along my neck to my cheek. I felt her tongue on the bridge of my nose, her breath smelling faintly of spice. My eyes adjusted to the weak light and her face seemed longer and thinner than before, her nose high and narrow and slightly crooked, like the beak of a thunderbird, come for me.

"Aren't you supposed to be with the white boy?" My voice was a rasp.

"I am always with Denny," she said. Her hand moved higher, away from me, and she undid a clasp near her throat. The silver gown fell away, and she was nude. She knelt astride me, then lay against me, her breasts cool against my chest. Her mouth found mine. The kiss was long and sensual and tasted slightly of blood.

We coupled in a single, slick movement. She uttered a throaty sigh and sank her teeth into my left shoulder.

"Hey!" I jerked away and felt warm liquid creep down my arm. The cut was ragged, pulsing. I started to shove her away, but her lips went back to the wound. Before I could move, I felt a wave of warmth flood me, a soothing ease.

Once, in my long-ago past, I had used heroin. I tried it only once, for it had frightened me; I had known I would go to it all too easily for the rapture it held.

This feeling was that and more. It was a constant feeling of orgasm, yet quiet. As we rocked, I felt my eyes roll back; I felt her fingernails dig into the flesh around my shoulder and heard the

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sound of her sucking grow louder. I didn't care. I was lost in the giving of blood and the taking of woman.

The moment came, and it was more intense than before, impossible to bear. I screamed.

"That was nice," she said, as we rested afterward.

Nice. "Yes." The song of the salmon had gone from my blood, displaced by an alien woman from some distant world. The ecstasy of Relánge.

She ran her index finger along the edges of the cut, then licked her fingertip. "I killed Jawda, you know." She slipped one arm under my head and the other across my chest.

"I know."

"Yet you did nothing."

"The others would have torn you to pieces if they had known, or even suspected. I—I didn't want that."

"It was an accident." She kissed my nipple. "I told her about the Kiss. She wanted it, wanted me to do it to her—there, up on the ridge. She said she had been eating too much venison; she was losing her mind. She wanted me to bleed her, take away the spirits of the deer that were haunting her. She ate the meat because she wanted to forget that you had once loved her but didn't any longer. She wanted to forget that no one wanted her except for a quick roll before he went home to his wife. But just as we began the Kiss, she became frightened. She jerked away. I tried to grab her. She fell."

Relánge propped herself up on one elbow, a little away from me. "I have never hurt anyone before. We—my kind—pride ourselves on that. Even when your kind bombed us, we didn't fight back. We could have destroyed you—our technology is beyond yours—but that isn't our way.

"Now I can't go back to my world. None of us who survived can go back. A relief ship would never arrive in time. The distance is too great. So we're Wanderers, like some of your kind. And I'm here with you. Think of me as your slave, Johnny." Her voice was soft, her lips close to my ear. "Whatever you want, whenever you want it, as many times as you want."

"A vampire slave," I said.

"No. It's not like that. It's not like food. It's the way we . . . it's part of our . . . communion."

I stared into the smoky semi-darkness.

"Johnny, what's this?" She held up something that glittered.

I looked. It was the copper tied around my neck with a leather

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thong. "A shield," I said. "A piece of one, anyway. They're used in potlatching. You buy one with, say, a hundred thousand blankets. Then if you want to hurt someone, really nail him, you use it. You find out how many blankets he has to potlatch. Suppose he has seventy-five thousand. You've only got fifty thousand, so you give him all of them. Then, when he thinks he's got you beat, you get everyone's attention and break the copper. Fifty thousand blankets, plus the copper worth twice that. You've doubled him. You've shamed him. He'll *never* live it down, unless he can somehow repay." I tapped the copper with my fingernail. "George Salmonbear—George California, now—did it to me when I was the white boy's age." I smiled at the memory. "Maybe that's why I spend so much time welding cans together. Rebuilding pride, maybe."

I felt a twinge of old pain, but it died as her lips moved on me and found the wound on my shoulder.

Rain came. It pelted down against the chanters and dancers and beat against the dock. No one stopped dancing. George was in the middle of the others, dancing with a bottle in hand, drunk and getting drunker. It was as if he was in his own circle, oblivious to the rest of us, drunk on scotch and glory. It was the greatest potlatch any of us could remember. We were all drunk. No one except maybe George cared about the canoe. We danced for our own reasons: love, hate, the past, the future, Jawda. Those of us who were *Hamatsa* danced and spoke our secret names to the wind and rain. We ate cod and flounder and cockles served with hemlock-bark sap and clover root until our bellies were full and we had to lean out over the water to puke. The rain fell harder. George made a speech about fishing and friendship and the magic of Kenmore washing machines. While he talked, I grabbed Relánge, and we went behind the fish-cleaning shack. We made love sitting up in the sand, my back against the corrugated metal. When we returned to the dance, my shirt was torn, and my chest was covered with bloody grit. I stripped away my jacket and shirt and danced, laughing. George kept blabbering. The rain washed the dock and the dancers.

Suddenly everything stopped. George ceased talking. The dancers came to a halt. The chants died. Even the rain seemed to slacken.

I kept turning for another few seconds, singing, but I was all alone. I was busy thinking of Relánge, of making another trip to the shack, but the quiet rippled into motion. The crowd parted, leaving a gap between the dock and the village. I stumbled forward and forced my eyes to focus.

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The white boy came down the path and onto the dock.

He was naked as a newborn, carrying his beat-up carpetbag.

From the set of his eyes and body, it was obvious he was coming toward me; I stood apart from the others.

The boy looked angry. He stopped at mid-dock and sat down, cross-legged. He fumbled with the carpetbag clasp, yanked the thing open, and started unloading his possessions. Two wadded shirts. Rolled-up socks, three pairs. A razor. Three battered paperbacks. Then he cried out and upended the carpetbag and shook it. Buttons, coins, paper clips fell out. Bits of paper floated down and were swept away by the wind.

The crowd gathered around him, some of them examining his junk as if it were treasure. He stared at me through the steady rain. I walked over and looked down at him. His eyes were full of tears—and hate.

"Everything I have," he said. His cheeks were tight and his lips thin with emotion. "Everything I own in the world. Take it."

"You're crazy. You've flipped out or something. Here. Have a drink." I offered him the bottle I held. He slapped it away, and it skittered across the dock.

"I saw you and Relánge last night," he said. "And I saw you"—he trembled with rage as he pointed toward the fish-cleaning shack—"I saw you *there!*" He waved at the junk from the carpetbag. "So you take it! You have to!"

I looked from him to my people, suddenly understanding what it was he was doing. I could tell by their faces that they saw it too: a matter of honor.

I leaned over the boy. "You can't do this," I said. "Get up." I touched his shoulder, but he didn't move. "You can't potlatch. You're not Nimkis. You're not even a goddam Indian!"

He folded his arms and gazed up at me. The hate in his eyes turned to scorn.

"Holy Jesus." I ran my fingers through my wet hair. I turned and walked to the end of the dock. I needed a drink and some time to think. I needed Relánge again.

"Okay," I said at last, then turned and walked back to him. "You want a fight, white boy, you got it. There's a whole shack full of junk up there in the village. And more of my stuff in the communal house. It's all yours, brother. Every last fishhook."

The crowd murmured louder. They nodded.

I pulled off my pants and undershorts and threw them at him. The jeans hit him on the chest, but he didn't move. I stalked to my

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denim jacket and balled-up shirt and tossed those things at him, too. The wind caught the shirt and blew it toward the water, but it landed on the wood. I stood there as naked as the boy, feeling triumphant.

A ring came rolling across the dock toward me. I bent and picked it up. A college ring. Yale.

"*Summa cum laude*," the boy said. "Pre-med. I was one of the last students to graduate before they shut it down for good. And in high school they told me I was foolish even to try and attend an Ivy League school. I didn't have the brains, they said."

I closed my fist around the ring, then nodded and tossed it to George.

"Down the beach," I said, then repeated it because the words were lost in the rain. "Down the beach is King Cove. You remember it; you dove into it to save me. It has the best shore fishing around here, that cove. The salmon come in and beg to be taken; they sing to your blood. Grounds are supposed to be communal, but we all know that's a lot of crap. King Cove is mine. It was my father's and his father's and his before that. No one fishes it now but me." I slapped my chest to make the point stronger.

"King Cove is yours now, white boy."

The crowd roared and clapped its hands, a many-handed beast with one mind.

George handed me a bottle; I grinned and took a drink.

The boy opened his mouth and removed a false front tooth on a small plastic denture. He held it up.

"You're potlatching a goddam *tooth?*" I asked. People laughed. But the boy held the thing, his expression serious. The people quieted.

"When I was very young, my father used to beat me," he said. "One day he hit me so hard this happened." He waved the false tooth.

"A lot of kids get beat," someone said. "Big deal."

He ignored the comment. "My father died that night. He went upstairs, lay down, and had a stroke." The boy stood and took hold of my wrist and put the tooth in my hand. "This is the only thing he ever gave to me that I kept, all I have in the world to remember him by."

I saw scorn on my friends' faces. It was valuable, that tooth. What did I possibly have to top it? I turned and walked along the dock. I watched the waves lap against the pilings. The dock was solid and

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strong, but eventually the waves would wear it away; the sea always won. I turned back toward the boy and the crowd.

I gazed at him for what seemed a long time.

Then, my voice quiet and even, I said, "I give you the pyramid."

I didn't look toward my giant construction of beer cans, so much a part of me it had become my name. I was afraid to look it at.

The boy stared at me, his eyes going wide. His face went slack; the muscles of his belly were no longer tight and defined. He put his hands to his face. I watched rain run from his hair over his forehead and hands in a rivulet that went down his arms and dripped from his elbows to the dock.

The crowd was silent. They nodded and moved away from him. He had fought well, but he was done. He sat down on the dock, still holding his face, and sobbed.

I walked over to him and squatted. We were naked and alone. "Did you really think you could beat an old drunken Indian like me?" I stroked his matted hair. "Come on. Let's go look at that pile of beer cans you own."

He looked up and sighed. His voice quavered when it came, and it was loud enough to carry to the ends of the Earth. "I give you Relánge," he said.

Something icy speared my soul. I was speechless. She wasn't really his to give, of course, but that didn't matter. He was giving her up. I knew what she meant to him. I had had her, and I knew.

The crowd was still, like a painting.

I touched the leather cord around my neck. The copper. The pyramid had been a great part of my adult life, the fishing only slightly less. But the copper was everything. George had stood before me, broken it, and handed it to me. The thousands of blankets the copper represented were only part of its value. It still held all the years of shame during which I'd carried it. Nothing was more important. I could give my shame away, and nothing the white boy had could match that, not even his life.

I fingered the metal and knew I could win.

Then I saw Relánge move in the background. She looked at me with the copper and smiled. One of the wounds on my shoulder suddenly throbbed. I glanced at the cut, remembering how it had come to be there. I stared at the boy, his body covered with a dozen or more half-healed wounds similar to mine. And I knew that in a twisted way, he and I were brothers. Blood brothers.

I looked again at Relánge. I understood. Whatever her intentions, by human standards, she was evil. Jawda, the white boy, me—she

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hadn't meant to hurt us, but we were victims. And there would be many others.

I let the cord fall back against my neck, the copper cold against my chest. "You win, Denny."

I helped him stand. We walked toward Relánge. The people seemed to melt away. There were only we three.

I would be with her, come nightfall. And while she took blood from me, I would take from her as well: nail clippings, tiny bits of flesh or hair, dirt defiled by her urine. Then, in the dark, I would find a shovel and return to Jawda.

She would lie not within the pyramid, as in my dream, but atop it. ●

MARTIN GARDNER (from page 35)

ANSWER TO DR. MOREAU'S MOMEATERS

Montgomery was right. Each birth adds ten more fish to the population, but because the mother is at once eliminated, the addition is only nine. If we start with 10 fish in the tank, the population first jumps to 19, then to 28, and continues in the sequence 37, 46, 55, 64, ... Each term is a multiple of 9 with one more fish added. Because 5,000 is not a term in this sequence, the tank cannot contain exactly that number. The closest the population can get to 5,000 is 4,996.

Dr. Moreau was amazed by how rapidly Montgomery arrived at this result. But Montgomery had used a shortcut that is familiar to all accountants. Do you know the trick? If not, turn to page 89.

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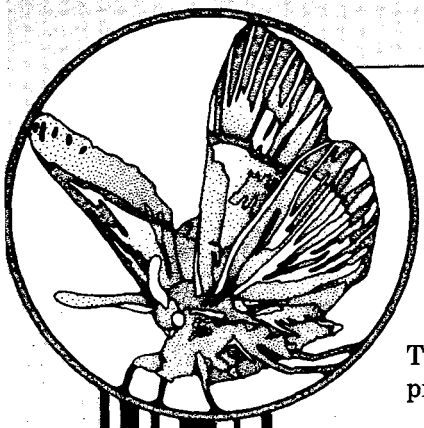

THE MOON & THE MOTH

Peter Payack

The moth
programmed by untold eons
of evolution
uses the Moon as a beacon
to navigate its flight.

But how has the Moon
fallen from the nighttime sky,
and become attached
to this post on the porch?

Thus this white-winged lunar explorer
using all the bug logic
at her dutiful disposal
frantically orbits the porch light
like a crazed Apollo astronaut
on an endless excursion
to oblivion.

As a *deus ex machina* of sorts
in this little insect drama
I mercifully
switch off the light.

Now free
from the mesmerizing pull
of the Moon,
the moth breaks out of orbit
and flutters
safely back to Earth.

On this flight
at least,
the gods flew with her.

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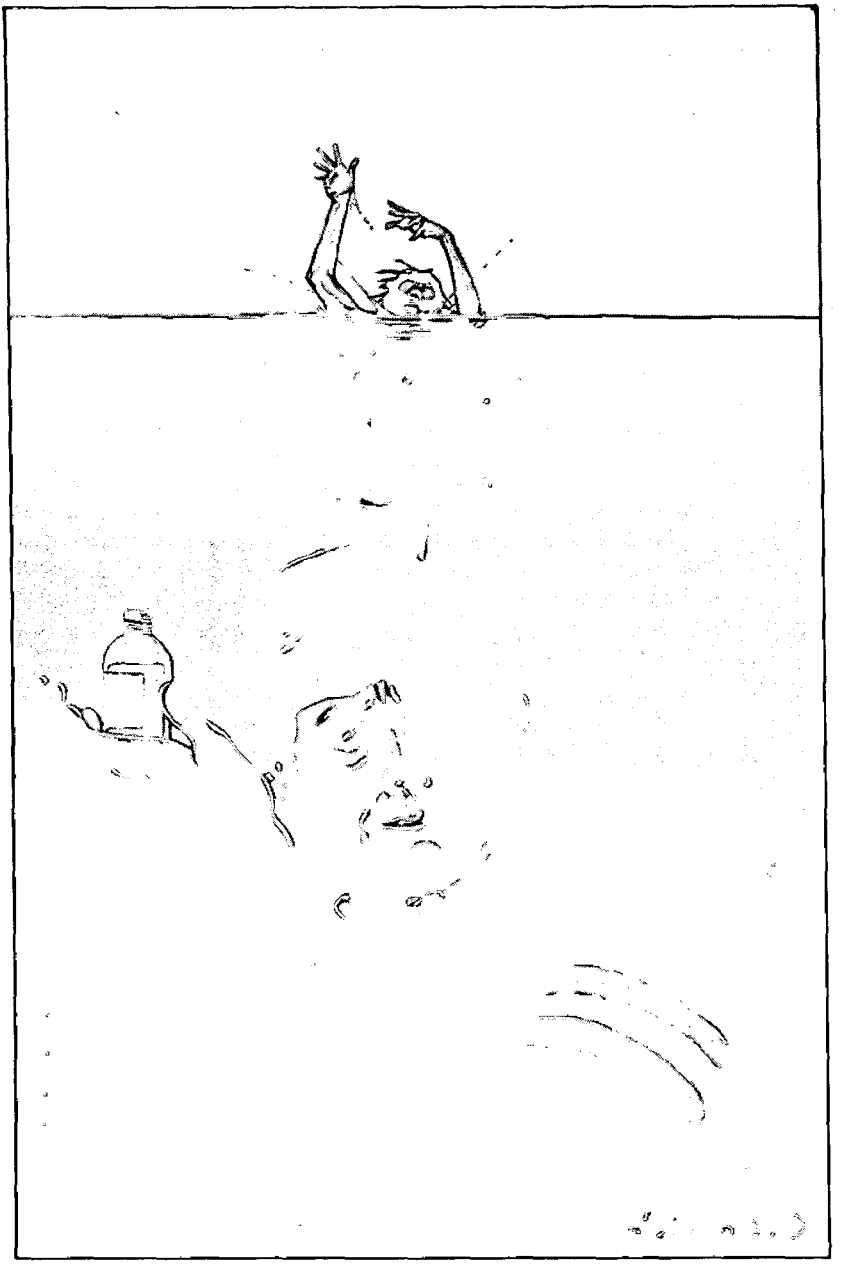

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WET BEHIND THE EARS

by Jack C. Haldeman II

art: John Pierard

Since our Summer 1977 issue,
Mr. Haldeman has been sending us
all-too-infrequent but altogether
wonderful little stories.
We hope that now
that he's settled down,
once and for all (he says)
in Gainesville, Florida,
he'll contribute a bit more frequently.

Willie Joe Thomas was born to bad luck.

Some say he brought it on himself, and they may be right. He was a swimmer, a college student, and a deceitful man. Not necessarily in that order.

Rather than study through high school, Willie Joe had forged his transcripts to get into college. Rather than work to pay his tuition, he got a swimming scholarship under false pretenses. If there was an easy way to do something, he would do it. Like an amoeba, Willie Joe had followed the path of least resistance all his life. It showed.

The water was warm and the chlorine stung his eyes as Willie Joe pulled himself from the pool. He headed for his towel, dead last again. The meet with A&M was tomorrow, and if he didn't shape up, he'd lose his scholarship for sure.

That would mean work, and Willie Joe hated work. He slipped away to the showers, managing to avoid the coach.

Big Ray, who worked out in the weight room, was scrubbing down in the shower with the hot water on full force. Willie Joe stripped off his suit and stepped into the steam.

"Afternoon, Willie," said Ray. "Short practice today?"

"Had to leave early. Got a chemistry midterm."

"How did practice go?"

"Fine," lied Willie Joe. "I'm in top shape."

"Gonna really show it to those Aggies?"

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"You bet," said Willie Joe. Dead last against three of the "B" team. A humiliating defeat. He could feel the scholarship slipping through his wet fingers like a bar of soap.

As soon as Big Ray left the shower, Willie Joe turned the water down to a more comfortable level. He washed quickly so that he would be out of there before the rest of the team showed up.

Dripping water, Willie Joe grabbed a towel from the stack beside the lockers. He hated being wet more than anything in the world. That was unusual in a swimmer, but Willie Joe wasn't your usual swimmer. He was more like a fake swimmer.

When he had first embarked on his college career, it had seemed like a good idea. Being a fake swimmer was a lot easier than being a fake football player, for instance. On the other hand, it involved a lot of water. Willie Joe felt bloated all the time and imagined he sloshed when he walked. The more water managed to seep into his life, the more he hated it.

In the winter his wet hair froze, in the summer it was always plastered down against his head like a wet mop. He had a nasty fungus in his ears that he couldn't shake. It seemed like his fingers and toes were constantly wrinkled, and he had the world's worst case of athlete's foot. His eyes were constantly bloodshot, and though his roommate blamed it on his dissipated lifestyle, Willie Joe knew it was from all that chlorine. He was in the water as little as possible—just enough to keep the coach off his back—but that was still way too much. He'd grown to dislike everything about the swim team except the scholarship. Even the bathing suits were the wrong color.

The only water Willie Joe had any interest in was carbonated and thoroughly mixed with a shot or two of whiskey.

His hair was still damp as he walked across campus to Whitehand Hall and took his seat in the crowded lecture room. Although chemistry had the reputation of being a bear of a course, he wasn't worried at all. He'd put a lot of effort into this exam. He was better prepared than he'd ever been before.

He'd scribbled the redox equations on the ledge over by the pencil sharpener. He had a periodic table stuffed inside his slide rule. The gas laws were written on the insteps of his tennis shoes, and a couple of complicated formulas were scratched on the bottom of his calculator. He was extremely well prepared and breezed through the exam without a hitch.

It never occurred to him that if he put half the time and energy into studying that he did into cheating, he'd get better grades with

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a lot less work. Things like that seldom occurred to Willie Joe. He was that kind of a person.

As he left the exam, he knew he really should go back to the pool and catch the afternoon practice session. Instead, he called the coach and told him his cousin had gotten sick again. Then he headed for the nearest bar.

Countless cold ones later, Willie Joe staggered back to the dorm in the dark. The evening had somehow slipped away from him. He was just climbing into the sack when his roommate, Frank Emerson, burst into the room, turning on all the lights.

Oh no, not again, thought Willie Joe, pulling the pillow over his head. Frank was a grad assistant down at the chemistry lab and was as strange as they came. Inorganic compounds got him all excited and the mere mention of carbon bonds would keep him babbling all night. The guy was loony. He was also straight as a rail, a real pain.

"I've done it," said Frank, pulling the pillow off Willie Joe's head. "This time I've really done it."

Willie Joe sighed and reached under the bed for the bottle of cheap white wine he kept there for occasions like this.

"Done what?" he asked, taking a slug and coughing. "Another perfect solvent?"

Frank blushed. He'd wasted a month's research looking for the perfect solvent, something that would dissolve anything it came into contact with. It had taken him that long to realize that even if he succeeded, no bottle in the world would be able to hold it. It was a lost cause.

"No, this one works," he said. Suddenly he frowned. "It's against the rules to drink in the dorms. You know that."

"So report me, test-tube face. I do what I want. What boring thing have you discovered this time?"

"It's not boring, and you should obey the rules. That's what rules are for, to be obeyed. They're for everyone's benefit." He set a small vial on the dresser. "This is it," he said with no small measure of pride.

"Great," said Willie Joe, taking another hit off the bottle. "No doubt you have something in that little jar that will change both the course of history and the face of the Earth. Now, how about turning off the lights so I can get a little shut-eye. I've got a meet in the morning."

"I call it a molecular sliding compound, and I'm going to give it to the U.S. Navy. Besides, it's a vial, not a jar. You should learn to

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be precise with your scientific terminology."

"Humph. I know a jar when I see one. What's the Navy want to slide for?"

"You don't understand. What this compound does is polarize the electrostatic charge between the hydrogen/oxygen bond, causing a great deal of molecular slippage and a subsequent near total decrease in the coefficient of friction."

Willie Joe squinted at his roommate through a haze of wine and stale beer. "Huh?" he said. "Put that in English."

"If you paid attention in your chemistry class, you would understand what I was saying."

"If I paid attention to everything I was supposed to, I'd never have any fun. What did you say?"

"The practical effect of this compound is that it effectively eliminates all friction from anything placed in water. Boats will be able to move across the sea with no resistance at all. The fuel savings will be astronomical. It will be possible for submarines to achieve incredible speed. Imagine, if you will, sailboats zipping along as fast as speedboats, battleships breaking the sound barrier in the Atlantic Ocean. Water will never be the same."

"It staggers the mind," said Willie Joe, pulling the pillow back over his head.

"I don't believe you grasp the full import of this discovery," said Frank. Willie Joe just snored, clutching the bottle to his chest like a glass teddy bear with a screw-tite cap.

The alarm went off at seven, and Willie Joe's mouth felt like the football team had used it for a practice field. His head throbbed and his body ached all over. He staggered to the sink, tossed down some aspirin, and brushed the fuzz off his teeth. He felt terrible, and his brain just wouldn't get into gear.

This was it, the big day. It was likely to be his last day, too. He wouldn't be able to fake his marginal swimming skills any longer. So far he'd been able to get by with a batch of phony press clippings and a season-long case of the cramps. The coach had said if he didn't swim today against A&M he'd be dropped from the squad. That meant he would lose his scholarship and his free ticket to the easy life at the University. He'd have to get a job, and that was unthinkable. He'd never had a job of any sort before and now was not the time to start.

As he put his hairbrush down, he saw that the vial was still on the dresser. The conversation with his roommate last night came back to him in blurred bits and pieces. Through the alcohol-induced

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fog he remembered something about moving effortlessly through water. If it worked for boats, why wouldn't it work for people? There were two ways to find out. Either he could wake up Frank and ask him or he could bop his sleeping roommate on the head and steal the stuff.

Always the amoeba, Willie Joe bopped Frank on the head and stole the vial. It was clearly the path of least resistance.

The dressing room was full of steam and tension, as it was before every meet. Some of the athletes sat by themselves in silent contemplation, while others kidded each other with loud, nervous laughter. Willie Joe stood at his locker and stared at the vial like a drowning man might eyeball a life preserver or two. It was salvation. And to think that dummy of a roommate would have wasted it on the Navy. He started sloshing it on. It had a most unusual aroma, not unlike that of a dead armadillo after ten days on the side of the road. To put it politely, Willie Joe stunk.

"Powerful aftershave you got there, W.J.," said Kevin Barker from the next locker. "Takes me right back to the farm."

Kevin was a butterfly man who sometimes did the crawl. He was so gung-ho he shaved his head before every meet. Willie Joe hated people like that.

"Nobody asked you, chrome-dome," snapped Willie Joe.

"Hey, take it easy," said Kevin. "I was only making a joke."

"Well, joke someplace else. I've got no sense of humor today." Willie Joe hid what was left of the vial behind his clothes and slammed his locker door shut. The coach was beginning to give his pep talk, urging all the men to go out and win this one for the Board of Regents. Willie Joe took the opportunity to slip into the showers and test the compound while no one was watching.

As he stood under the shower, the water ran off him like raindrops off the hood of a brand new Cadillac. He grinned. This would be a piece of cake.

He went to the bench and sat down, hardly paying any attention at all to the preliminary races. The Aggies were ahead, but that didn't bother Willie Joe. He'd win his event, and that was all he cared about. It was in the bag.

"Glad to see you're suited up, W.J.," said the coach. "I hope your cousin is okay."

"She's much better. It was a miraculous recovery."

"Another one? Well, that's good. How're the cramps?"

"No problem, Coach. I never felt better."

"Glad to hear that, son. You're on next. We need this one, and the

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hundred-meter freestyle may be our only chance."

"I'll do my best, Coach."

"I know you will. Carry on." He wrinkled his nose. The boy smelled like he'd been rolling in bear grease.

Willie Joe took his place at the end of the pool. Unlike the others, he didn't jump into the water before the race to get used to the water. Instead he practiced looking cool and aloof. No sense in tipping his hand.

They lined up for the starting gun, taking their ready positions with care. The men on either side of Willie Joe were gagging, and someone went off to see if the ventilation system was broken. The gun went off, and so did the swimmers.

Willie Joe hit the water like a hot knife sliding through melted butter. His entry was so smooth he could hardly feel it when he broke the surface. He slid under the water like a human torpedo and was halfway across the pool, far ahead of everyone else, before he had to take his first stroke.

It proved to be his downfall.

He pushed his arms, and nothing happened. He kicked his feet, with no results. The compound was working, all right: it was working only too well. He was completely friction-free in the pool, but at the same time he couldn't push against the water. It was like pushing against air. Having lost the forward momentum from his dive, he sank to the bottom like a rock. The other swimmers passed over his head, leaving a trail of bubbles.

Willie Joe pushed against the bottom of the pool and shot straight up, leaping from the water like a dolphin at Marineland. He sank just as quickly. In the end, he had to walk across the bottom of the pool to the ladder at the shallow end.

Dead last again. Finished. All washed up. As he climbed out, he saw that the police were waiting for him. So was his roommate. Frank had a bandage wrapped around his head, and he looked pretty excited. He was yelling something about national security and the CIA. The coach looked as if he wanted to kill somebody. The water slid off Willie Joe like magic, collecting in small puddles at his feet.

It was all over. Willie Joe shook his head and groaned. The police came toward him with handcuffs. Jail would probably be better than having to face the coach. No telling what Frank would do if he got the chance. If he didn't go to jail, he'd have to get a job. Frank would probably make him work it off in the chem lab. He shuddered at the thought.

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Willie Joe Thomas was born to bad luck, no two ways about it. He still smelled like an outhouse.

But at least he was dry. ●

IAsfm Puzzle #2

Solution to "British Treasures"

from page 24

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THE COFFIN RIDER

art Gary Freeman

The author is thirty-one years old and a former professional rock musician. He has had stories accepted for *Weird Tales* and *Chrysalis 11*. A transplanted New Yorker, he now lives in southern California with his wife and son.

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"I'm talking bottom line, that's what I'm talking. I've got 600,000 Jeremy Stone Memorial tee-shirts laying in a warehouse across town, and you're telling me to sit on them?" Eddy Duvall thumbed open a jar of pills and poured out two capsules. He washed them down with cold coffee while signing to the girl from the art department to lay out the new designs on his desk. From the vidphone bank, three callers silently clamored for his attention while the man he was speaking to murmured hesitantly, metallically. Eddy wasn't listening.

"Find a space anywhere, clear off all that mail—that's right, throw it on the floor. Get somebody in here with a mail sack and move all that stuff out, I'm up to my ass in condolences and heart-rending telegrams. I'm sorry, Frankie, I didn't hear what you were saying—never mind, I know what you're thinking. Jeremy's only been dead a couple of weeks, you're talking a decent interval of mourning and all that. What can I tell you? I'm a wreck. The kid was like a son to me, I made him what he was, but life goes on. I've got costs."

The next screen began flashing with an "urgent" signal. He recognized the face of his ex-wife on the pulsing screen. "Alimony payments go on. Just call the distributors, Frankie. Get the stuff moving." He broke the connection. He clutched his stomach and scowled at his ex, picking up the layout work for the album covers. "What is this? I asked for a black border around the picture. Where is it? Did I not ask for a black border? And he's smiling! Come on, I want some class here. Get one of those shots from the holocubes we're selling, the one where he looks, you know, thoughtful or stoned or whatever he was."

He pushed the layouts away from him, dismissing the cowering girl. He jabbed at the receive button on the flashing screen. "Look, Carla. Not now, whatever it is—not now! The check's in the mail." He cut the connection picking up a bill for $25,250 from Studio Innovation Rentals. He punched another screen while he turned the sheet over in his hands as if it was something alien and vaguely unclean. "Yeah," he said absently into the screen. "What is it?"

"This is Bill Adler in A&R, Eddy. We've got some people lined up to overdub the Stone album. When do you wanna move on that?"

"Right away. Yesterday." Eddy was still looking at the bill. It read: "21 days EER rental and installation" and then the price tag. "Bill, what the hell is an EER and why did we rent it from S.I.R.?"

"Ya' got me, Eddy. You'd have to check with Larry down in the studio. All I know is it's some kind of recording gizmo."

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"Right." He switched off. "Edna, get me Larry Walsh down in Recording." Two boys from the mailroom came in with sacks and began stuffing them with cards, telegrams, and letters stacked around the office. "That's it, take it all. I can't see my gold records." He winked at the boys, but his expression turned into a grimace as his ulcer announced itself. The boys looked frightened and hurried out of the room. "Edna, get me a glass of milk, will you?" He took another call.

When he saw the sober-looking man on the screen, he tried to turn his grimace into a smile. "Well, well, Mort. Nice to hear from you."

"Eddy I'm afraid this is important. I've covered for you at the bank for six months now and frankly . . . "

"Mort, Mort. Give me ten days. I promise you. I've suffered setbacks. My biggest act just died in a terrible accident up in Vegas. You must have heard about it, Jeremy Stone. Everyone's upset, things are up for grabs."

"Eddy, I wish I could . . . "

"Ten days, Mort. I'm begging you."

"I'll see what I can do."

"Here's your milk, Mr. Duvall. Mr. Walsh is on line three."

"Give me that. What time is it? Go home. You've got enough overtime for one week." He spun in his chair and gagged on the milk. "Larry." He tossed the milk into an overflowing wastebasket and stabbed at the wall bar for a vodka on the rocks. "Screw the ulcer. This will do me more good."

"I'm sorry, Eddy, what did you say?"

"Never mind. Larry, what the hell is an EER and what are we doing with it down there for over a grand a day?"

"Oh, that." Larry unbuttoned his tunic and leaned back into his swivel chair, clasping his hands behind his head. "It's the wave of the future, Eddy. A gold mine for all of us."

"Save the sales pitch, Larry. What is it?"

"Okay." Larry leaned forward, choosing his words. "It's called an Emotive Engram Recorder. It's new in the industry. Everybody's still feeling their way along with it, but in six months I know RCA and Warners/Elektra, maybe United Artists are going to launch a campaign with albums done on the thing. Sony and Panasonic are timing their pitch for home units about four months from now to coincide with the supply hitting the market."

"Larry, what are you talking about?"

"What it does is record the emotive state of a performer, every

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nuance of emotional sensation during his performance. Somebody with a home unit and a record can experience the music in a way transcending the most intimate and dynamic live performance. It was Jeremy's idea to bring one of them in for the album. I, uh, gave him the green light on it. It's going to be big, Eddy. A whole new ballgame. Psychotherapists have been using a version of the device for the past couple of . . . "

"What, are you reading me a brochure? Get rid of the thing. I've got a bill here for over twenty-five large!" He waved the paper at the screen.

"It's not that simple, Eddy. You don't understand. Jeremy recorded the first half of the album on the EER. We've got to get somebody in to finish up on it, somebody who can sync up and deliver the whole Jeremy Stone EER package. If we deliver only half the goods, we've got a turkey, maybe a novelty item, a curiosity. Bill Adler has been screening people to overdub. Now I figure anybody who can duplicate Jeremy's musical style stands a good chance of checking out on the 'sub groove,' as we call it. Some of them didn't work out, but I've got a kid lined up who's a ringer for Jeremy's feel."

"I don't know. How much is this going to run us?" Eddy swirled the ice in his glass.

"Eddy, if we pull this off we've got a product that goes for maybe $119.95 a disc with a built-in, hungry market."

"Bottom line?"

"The sky, Eddy. You tell me."

"Well . . . " Eddy tossed off his drink and grimaced again. His features gradually softened as the liquor did its work, and he said, "Well, blow me down. Blow me up . . . What was that Jeremy always used to say?"

Larry beamed into the vidscreen. "Well, blow me away!"

"Right. Right." Eddy smiled tentatively, paused, and then said, "Get on it, Larry." And he blackened the screen.

He thumbed for another drink on the wall bar. In a moment it arrived, and he lifted his glass to the framed three-by-four poster of Jeremy Stone behind his desk. The famous squinty grin peered back at him, collaborating posthumously in the enterprise. Eddy drank and set the glass down, forming a boozy ring on the "accounts receivable" sheet from S.I.R. Eddy felt his ulcer threaten him. He glanced back up at the poster. "You're almost as much of a pain in the ass dead as you were alive."

Bottom line, the sky, he thought.

"Well, blow me away," he said softly, to no one.

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* * *

Paul Underwood arrived at The Lightning Building just after sunset. A light rain had caught him between the parking lot and the lobby. His hair and guitar case dripped on the carpet as he studied the directory. Administrative offices, Management & Booking, Penthouse, Sales, Promotion, Arrangement, and Recording. He glanced at the piece of paper in his windbreaker pocket: studio C second floor, same place as last week. He passed his hand over the circuit breaker to summon the elevator. His mouth was dry, his hands cold.

It had been one of the strangest auditions he had ever been to—and he'd been to some strange ones. The EER had been like a powerful and frightening drug. Larry Walsh had said that it made a few of the musicians nauseous and dizzy after only a few minutes. Others, he had said, simply grew frightened by the emotive output of Jeremy Stone and had begged off. For Paul it had been, among other things, undeniably exhilarating, like hitching a ride on a comet's tail. For a few moments he knew what it was like to be dynamic, forceful, charismatic—at least how it *felt*.

Paul was an excellent guitarist, a technician he called himself, and he kept himself in work as a "session man" or a "side man." Musicians like him never became recording artists or performers. He told himself he was happy in his niche, and he was. But *almost* becoming Jeremy Stone for the briefest of moments last week had given him a taste of something he secretly dreamed of: being one of the all-time greats of rock and roll. It was also eerie as hell, merging with the essence of a dead man, playing along with a ghostly presence, improvising, responding, and harmonizing with a man who had been buried for ten days.

He licked his dry lips as he boarded the elevator and spoke into the plate, "Second floor." His tongue felt like sandpaper. He hadn't been this nervous since his first session, when he was seventeen.

He thought about Jeremy Stone. It was impossible to think of him as being dead. Stone had been a nonstop eruption of creativity and drive until he wrapped his Porsche around a concrete pillar somewhere in Nevada.

He had met Jeremy twice before at parties and thought he had seemed okay basically, but intense. His intensity was evident in the hunched set of his shoulders, as if he were constantly poised for some manic burst of activity; it burned through his eyes in a perpetual smiling squint. He remembered the staccato laugh and the chain of cigarettes. Other than that, there was just the media image

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of The Wild Man of Rock and Roll: the warpaint, the special effects, the burning stage. It was an expression of the real Jeremy, all right, but just a part of him. After the brief exposure to Jeremy's EER tape, Paul almost felt as if he knew him as well as anyone did.

He gave his name to the voice on the other end of the intercom at the entrance to studio C, and the large, opaque door swung inward. The studio was big and dim; the only illumination came from the control room's stark fluorescence and the banks of colored lights set into tracks on the ceiling. The silhouettes of musicians and engineers moved through the colored gloom with a kind of funereal purposefulness. An engineer named Mike greeted him and introduced him to two musicians: a saxophone player named Carl, whose eyes and teeth gleamed in a black face, and an impassive synthesizer operator named Alex. They had worked with Jeremy on the album and seemed somehow ill at ease, embarrassed, as if they were attending a seance with Paul as the medium. The EER hummed to itself in the corner, indicator lights winking, cables reaching along the floor toward the guitarist.

The voice of the producer boomed through the playback speakers. "Good to see you, Paul. You've met everyone?" Paul nodded at the blond-haired man in the control room. "Yeah," he called out. His voice was flat.

Larry Walsh spoke into the console mike: a twisted, burnished snake poised to strike. "Paul, this is Mr. Duvall, the executive producer and head mahuff at Lightning." He indicated a balding man in a pastel multyester suit, who nodded curtly and fidgeted behind clouds of cigar smoke. "He was also Jeremy's personal manager. If you have any questions, you know, about Jeremy or anything . . . Also Carl and Alex worked with him pretty closely, as I did, and we'll try to help you out as much as possible.

"Now, here's the situation. We're running over budget on the project, so we're going to be pushing for takes. We want to wrap a master some time in the next day or two if it's at all possible. Overtime, maybe even Golden Time. Can you handle it?"

Not waiting for a reply, Walsh continued. "We've got EER tracks for about half the stuff, and we've got to match up as closely as we can with the subliminal groove Jeremy has already established on the rhythm tracks, the scratch vocals, and the finished material. The record buyers who are going to have these units at home will be able to spot a seam or a lag, and that we don't want. It's doubly tricky because while we can always punch for an instrumental, we've got to take the EER stuff in whole pieces. You've got to keep up that

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level of emotional output from the first note to the last. You get me? We're asking for blood, I know, but that's the gig.

"The EER has got a hypnotic signal built into it, which will put you into a light trance and augment your responses to what you're playing, but you've got to bring as much as you can into it. The fact that you're probably not as crazy as he was"—here he smiled—"is your good luck, but frankly, it's something we're going to have to work around. If you can, try and *feel* like a maniac." He laughed heartily, and his laughter was echoed by the chuckles of the sax player. Paul forced a smile as his eyes were drawn to the winking, humming machine that somehow seemed more animate than anyone in the room. "You will, of course, get credit in the liner notes, but this *is* a Jeremy Stone product." He paused meaningfully. "Okay, Mike is going to tape the contact points to your head, chest, and wrists like we did the last time. The home units will just have an electrode band attached to the headsets, but we do it this way for a cleaner signal we can work with. You've listened to the cassette of the rhythm tracks. Are you familiar enough with the material to go for a take?"

Paul, who had been removing his antique Les Paul Custom from the case and making adjustments on the amp to match the tone of Stone's instrument, said. "Yeah, Mr. Walsh. Anytime you're ready." He unbuttoned his shirt and Mike taped six wires to his torso, forehead, and wrists. They felt unnaturally cold.

"Call me Larry. Okay, rolling on take one: *Rendezvous*. Let's see what you boys can do." Paul noticed the squat form of Eddy Duvall shifting his weight in his chair, running sausage-like fingers through his hair.

The tape began rolling, and Paul felt a momentary disorientation, as if his body were falling away from him. This was followed by a surge of exhilaration he had experienced only briefly last time. It seemed stronger. His doubts, nervousness, and self-consciousness were swept away in the wake of a euphoric, burning purpose. His concentration on the music increased to an intensity that was almost painful. His fingers flew over the fretboard, firing off quick detonations of color. His hands found chords, patterns of syncopation, and textures he had never before imagined.

The piece climbed toward a crescendo, and Paul gave in to it. To resist would have been impossible. As he surrendered to the elemental whirlwind of sensation, it gathered force and became a hurricane of white heat that dwarfed the part of his mind that was Paul.

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From a remote corner of his being Paul observed with awe the thing that howled through him with a single, terrible intent.

Eddy Duvall peered through the clouds of cigar smoke billowing against the glass panel and into the dark studio. Everything was going better than could be expected. He glanced at his watch. They had been taping for two hours now, and they had three songs in the can already. It would have taken Jeremy a month. As he listened, he tried to distinguish the original tracks from the grafted-on stuff. It was impossible. Of course, he wasn't plugged into the gadget—he was too old for kicks like that—but he knew with the intuition that never failed him that he had hit on the right course of action. He had been prepared to slap together some old stuff of Jeremy's to stick on the other side of the record and get it out fast while the fans were still out of their minds with grief, but this EER idea would net him a hell of a lot more than a conventional record.

Things were going to be just fine. At the rate things were going, they could wrap up the master tonight, mix it down tomorrow, press it early next week, and get the promo machinery in gear. He'd be flush again in no time. Better than that. All it took was vision and the guts to act on it. Why, then, was his hand shaking as he lifted his cigar? He had to get away when this was all over, somewhere quiet, with no vidphones, where no one had ever heard of Jeremy Stone.

Larry called out over the mike that everyone should break for half an hour. He congratulated the musicians on doing a good job and then turned to the console to match meter readings on the EER monitor.

"Look at that kid out there." Eddy roused himself and gestured to the musician. "It's almost like having Jeremy again, the way he plays with his back to the others and everything. . . . " His eyes narrowed as he watched Paul borrow a cigarette from the synthesizer player. "I didn't think he smoked." He watched the glowing ash describe parabolas in the dark.

"What was that, Eddy?" Larry cocked his head absently.

"Nothing." Eddy got to his feet and began to pace. He removed his jacket and loosened his collar, wiping at the perspiration that formed on his neck even though the air conditioning kept the room quite cool.

Carl told Paul he played better than the McCoy. Paul grinned as Mike removed the contact points, and Alex suggested they go across

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the street for a beer. The three musicians took the stairs and then raced across the street in the rain.

In the bar, Paul bought two packs of cigarettes and tossed off his first beer almost at once. He felt the effects of the machine wearing off, and he noticed his thirst, his tiredness, and the demands the EER had made on him. He was shaking slightly.

"Well?" Carl leaned forward over his drink. "What's it like?"

Paul tried to shrug the tension from his shoulders. "I don't know. It's heavy."

"I hope we can give him what he wants tonight and get the hell out of there." Alex frowned at the mirror on the back bar. "I don't like working for him. The guy's a sleazoid, a coffin rider."

Paul looked over at him. He was eager to get back to the session, to recapture that frightening high, though he sensed the danger in the thing, a kind of death. He tried to gain some perspective on the experience, but all he could think of was getting back. He forced himself to sit there. "What do you mean?"

"He means like five years ago, when Melody Ann—that chick singer—when she OD'ed and Duvall cashed in so big." Carl explained, smiling cynically. "You remember that? Melody Ann make-up, Melody Ann statuettes, this and that? He made more money on her dead than alive, and you know he's gonna do the same thing with Stone."

"I didn't know she was with Lightning." Paul said distractedly, trying to rub away a headache with his fingers. He had to get back to the machine.

"Oh, yeah." Carl drained his beer. "That's why Alex calls him a coffin rider. What do you think, Alex? You think Eddy's gonna sell Jeremy Stone Bronze Jock Straps or what?" The saxophone player laughed to himself.

Alex pushed himself away from the barstool and paid for the drinks. "Come on, let's get this over with and get paid."

Paul followed him out of the bar, trying not to run.

It was like riding a wave of stately blue-white pain. Every nerve ending was being raked with cold fire, and it was exquisite. The music and the anguish careened down black corridors of despair. His chest felt like a bottomless pit of hopelessness.

And yet it was sweet. Tears formed and then dried. His grief was too deep for tears. The song ended.

"Okay, that's a take. Beautiful, man. Really nice." Larry ran a hand over his face. "Say, it's almost three A.M. We've got two more

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numbers to go. What do you guys think? You wanna call it for tonight, or you wanna keep rolling?"

Paul lunged to his feet, his shoulders tensed under some invisible burden. "Keep rolling! We're almost finished!" His voice was a little too shrill, edged with desperation. He turned to Alex. "I mean, we want to get this over with, right?"

Alex stared back at the guitarist, his eyes focusing on something unclear yet disturbing. Carl looked at Paul from across the room, turning his head as if to view the musician from different angles. The saxophone player and the keyboardist exchanged looks of dawning disquiet.

Paul lifted his thirtieth cigarette of the night—the thirtieth cigarette of his life—lodged eccentrically between two middle fingers. The mannerism was unmistakably familiar to everyone in the room. "What's the matter? Look at you two!" He threw his head back and laughed a rapid fire cachinnation that made their blood run cold. "Seeing ghosts?" His laugh was a dead thing in the still room.

Eddy Duvall stood and stared into the studio, his eyes wide, searching the musician's face. His own turned ashen. "What . . . what . . . ?" A tic formed at the edge of his mouth and he could not speak. His knuckles were white, his nails bit his palms.

Larry hit the microphone switch. "All right, all right. Everybody take it easy." He spoke in a hurried tone, his gaze running over the EER monitor readouts. "What's happening is we're getting a little identity displacement. Now apparently this can happen." His voice tried to sound reassuring, though he was visibly concerned. "Paul has been wired up for six hours. That's pushing it to the limit. We're gonna call it a night. We'll finish up tomorrow." He turned to the engineer. "Mike, disengage the EER. You've all done a great job. I'll see you . . . "

"No!" The shout came from Paul. He knocked aside the boom mike over his amplifier with a blow from his guitar. Feedback screeched through the control room. "No. We go on. We'll finish this tonight!" His composure asserted itself marginally again. He smiled and felt the skin tighten strangely around his eyes, the bridge of his nose. He marked the dull, confused expressions on all of them and stifled another laugh. "I'm okay, really. Don't you see? I'm just . . . uh, interfacing with the engram more fully now. Two more numbers." He was pleading. "They're going to be the best yet. I'm hot now, that's all." He tried to look reasonable, like Paul Underwood. He couldn't let them shut him down, not yet. "I'm *feeling* Jeremy now. Now is the time to get it on tape."

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Larry looked dubiously over at Eddy Duvall. Eddy drew in a shaking breath. He picked up his jacket, replaced the cigar in his mouth, and tried to look away from the wild-eyed session man on the other side of the glass. He moved toward the door of the control room. "Go ahead." He said quietly to Larry, both of them staring in fascination at the simulacrum. "Finish it and get him out of here. I'll be in the penthouse. Call me when it's done." He turned quickly and left the room heading for the elevator.

Reckoning, take #1.
Rolling.

The rhythm track was a menacing jagged riff. Bass and percussion charged through the song on a blind raging beast. His lips curled back from his teeth as he slashed out with dissonant power chords. The beast hurtled through the metallic terrain of the music searching for an exit in the song so that it could go on a rampage of destruction. Nightmare machines clashed, exploding in oily smoke and blinding light. He felt his limbs charged with an energy from some abyss of hate. He merged with the beast.

In the penthouse Eddy removed his shirt and swallowed two more tranquilizers. The glass shook. He had to get a hold of himself. He cursed Stone for bringing that damned machine into the studio. It was unnatural, bizarre—just like he was. Its effect had been to unnerve Eddy Duvall. *Nobody gets to Eddy Duvall.* He lay on the sofa and tried to ease the bone-snapping tension from his muscles. He cursed Stone a thousand ways. Everything was his fault from the beginning. None of it would have been necessary if Jeremy had just continued to sell albums, if he had taken time out from his whoring and fast cars to make good on the career Eddy had built for him.

At first it had been a honeymoon. Jeremy had been hungry then; for two years he worked his tail off, coming up with the hits, touring like a demon, never missing a performance. The first two albums went gold almost overnight. Everybody was riding the gravy train. But then he had turned sour, just like Melody Ann. "The Prima Donna Factor," Eddy called it. After an unproductive two years of pregnancy, busts, and expensive treatments she had finally stuffed enough pills into her face to find the calm she was looking for in the bottom of a swimming pool. Eddy thought he was ruined. She was his only drawing card.

But then Eddy got smart. The ace up his sleeve was Exclusive

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Auxiliary Rights, and with a major media blitz he turned Melody Ann into a rock martyr overnight, selling relics of the saint to the faithful. Eddy bought the building after that. He slept in a penthouse instead of a cot in the office downstairs.

Then Jeremy came along. Eddy nurtured him and guided him, and before long there was more money rolling in than Eddy ever knew existed. Then came the investments and some bad moves. He tightened the belt but didn't worry—he was sitting on Jeremy Stone, one of the biggest acts of the century. He didn't figure on Jeremy running up debts almost as fast as *he* had. Still, he bailed him out and even went along with him on the last two "concept albums," but they slid off the charts and went right down the toilet.

Jeremy didn't seem to care. He disappeared for weeks at a time, failed to show at sell-out concerts, threw parties in the studio when he should have been working. The money went out like a tide, and the bills kept coming in. Eddy was holding sixty percent of a rapidly folding hand: Recording, Production, Promotion, Management, and Booking. There was nothing left of value . . . except the ace. What was he supposed to do?

Melody Ann, quite by accident, had shown him the way.

As the tranquilizers began to weave a fuzzy, pink blanket over his abused nerves, Eddy relaxed. It was all going to be over soon. He had let some kid unravel him with a bogus impersonation of Jeremy. It only served to point out how hard he had been working, how badly he needed a rest. The record would be wrapped up over the weekend, packaged and distributed by the fifteenth at the latest. All of the Jeremy products would be hitting the stores any day now. In six weeks at the most he would be on top of it again. It would all be over soon.

The daylight was a grey smear across the rooftops of the city when Eddy awoke to the insistent electronic tone. He blinked and rubbed the sleep out of his eyes, wondering for a moment what it was. With a start, he bounded from the sofa and threw on his shirt, glancing at his watch: 7:03 A.M. He approached the Security Conference Vidphone Unit, its red light winking in time with the tone. There could be only one caller on that line at this hour. He fought down panic, wondering if anything was wrong. He pressed the "receive" button.

"Good morning, Mr. Duvall." The face on the other end of the line was cool, reptilian. "Did I wake you?"

"No, no," he lied, smiling. "I've been up all night with a session. What can I do for you, Mr. Smith?" The face chilled him: lidded eyes, thin, humorless lips. Coiffed, manicured, and anonymous, he gave

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the impression of a man who liked his work, took pride in it. "Is there anything wrong? The money should have been there last . . . "

"There's nothing wrong, Mr. Duvall. I was just calling to confirm things on your end. I always make a follow-up call to make sure my clients are satisfied." He lifted his lips and showed Eddy the fixed smile of a stripper or a mortician. The background was a plain gray field—he could have been calling from anywhere.

"Yes, well . . . " Eddy moved the few strands of hair over the top of his head. He searched the desk for a cigarette. "Everything is just fine, Mr. Smith. Uh . . . "

"Well that's good," answered the now expressionless face. "I hope we can do business in the future."

"Of course. That is . . . " Eddy looked around the room behind him and to either side. He paused awkwardly. "Could you tell me how you . . . I mean, what was it like for him? You see, we worked together very closely, and it isn't as if I wasn't fond of him in a way."

"Please don't trouble yourself about it, Mr. Duvall. I never discuss the details."

"Of course. Well, thank you."

"Goodbye, Mr. Duvall." The screen went dark.

Eddy sat at the desk for a moment, He needed a shower; his shirt clung to him. The man seemed so . . . so unaffected. He couldn't imagine what it must be like to be a professional killer.

He rose and walked toward the bathroom when he saw a winking light on the house line. Someone had left a recorded message. He thumbed the switch, and Larry Walsh appeared, haggard but smiling. "I didn't want to wake you, but I just wanted to let you know we wrapped the session this morning. We've got some beautiful stuff, top of the charts stuff. Things went very smoothly. The master is in the safe, and I know you're going to like what we've got." The image dissolved. Eddy looked at the time the message was logged in. The readout told him the call came in at 4:49 A.M. It was over. He whistled tunelessly on the way to the shower.

Half an hour later Eddy was riding the elevator down to the lobby. He'd get some breakfast around the corner, pick up copies of *Cashbox* and *Billboard* on the way. It was going to be a wonderful day. A great weight had been lifted from him, and he was eager to tackle the day's work. There was still so much to do before he could take that little trip—the Caribbean, maybe Hawaii.

He was still whistling when the elevator stopped at the second floor and a man stubbed out a cigarette on the carpet and stepped from the shadows into the elevator. He was carrying a guitar case;

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his hair was disheveled; and on his face was a tight, squinting grin. He wore streaks of color on his nose and cheeks. Warpaint. The face had once belonged to Paul Underwood.

Eddy moved to the back of the elevator. His jaw trembled, and his heart did a dance in his chest. His briefcase fell to the floor. Through bloodless lips he whispered, "Jeremy."

The musician's smile tightened again. The smile fixed Eddy like a blade as Jeremy reached out and pressed the emergency stop button. The car froze between floors. "Well, blow me away," he said, and moved toward him.

Eddy never finished his scream. ●

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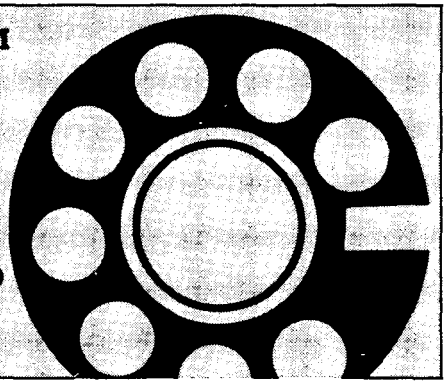

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(from page 64)

SECOND ANSWER TO DR. MOREAU'S MOMEATERS

Montgomery used the trick known as casting out nines. If you add all the digits of a number, then add the digits of the sum, and continue this procedure until only one digit remains, it is called the number's digital root. If and only if the digital root is 9, the number is a multiple of 9. If and only if the digital root is 1, the number has a remainder of 1 when divided by nine.

Montgomery realized at once that 5,000 did not have a digital root of 1, and therefore could not count the population in the tank at any stage of the breeding process. It was a simple task to determine the two numbers with a digital root of 1 that are the nearest to 5,000. They are 4,996 and 5,005, of which 4,996 is the closer.

When the tank held 4,996 fish, Dr. Moreau asked Montgomery to remove two-thirds of the males. He needed them, he said, for some new experiments.

Male momeaters are easy to recognize. Each has 15 fins, whereas a female has only 5. Montgomery first counted the number of male fish in the tank, and was pleased to learn that the number was a multiple of 3. He removed two-thirds of the males, as he had been instructed.

Now we have a very lovely problem. How many fins are there on all the fish that remain in the tank?

It seems impossible to determine this number because we are not told the number of males. In fact, we do not even know if male and female fish are born in about equal numbers. Nevertheless, you have enough information to solve the problem.

Try to solve it before turning to page 122.

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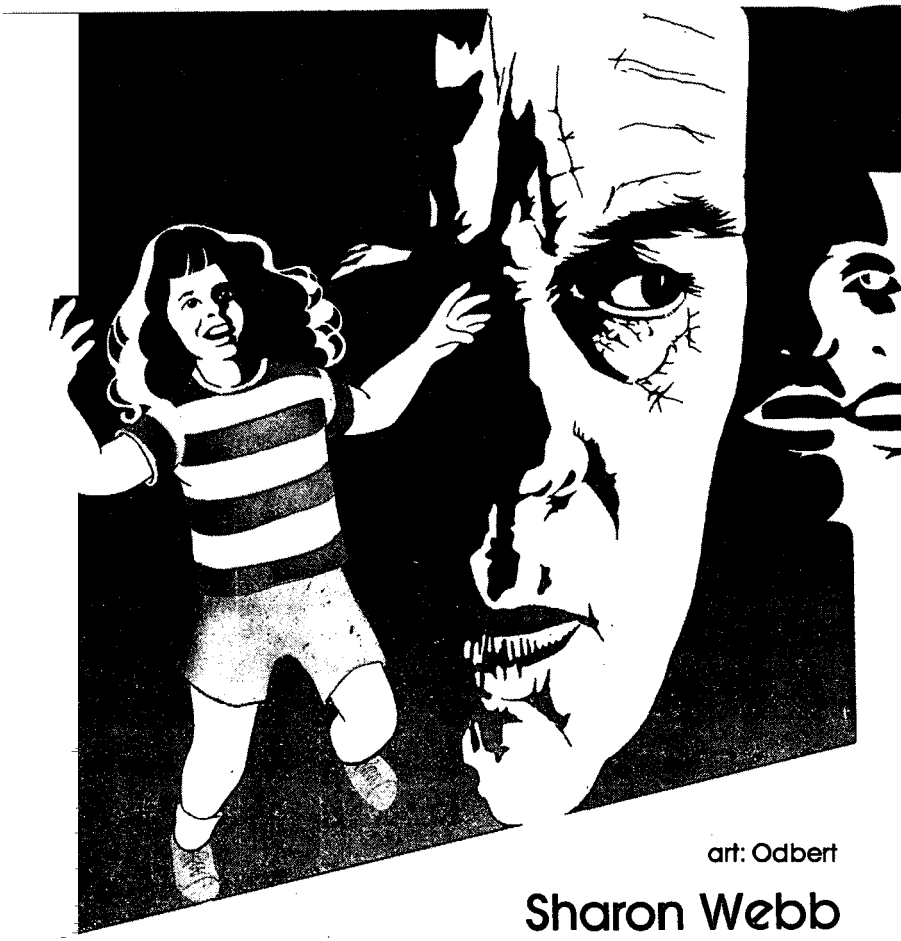

art: Odbert

Sharon Webb

SHADOWS FROM A SMALL TEMPLATE

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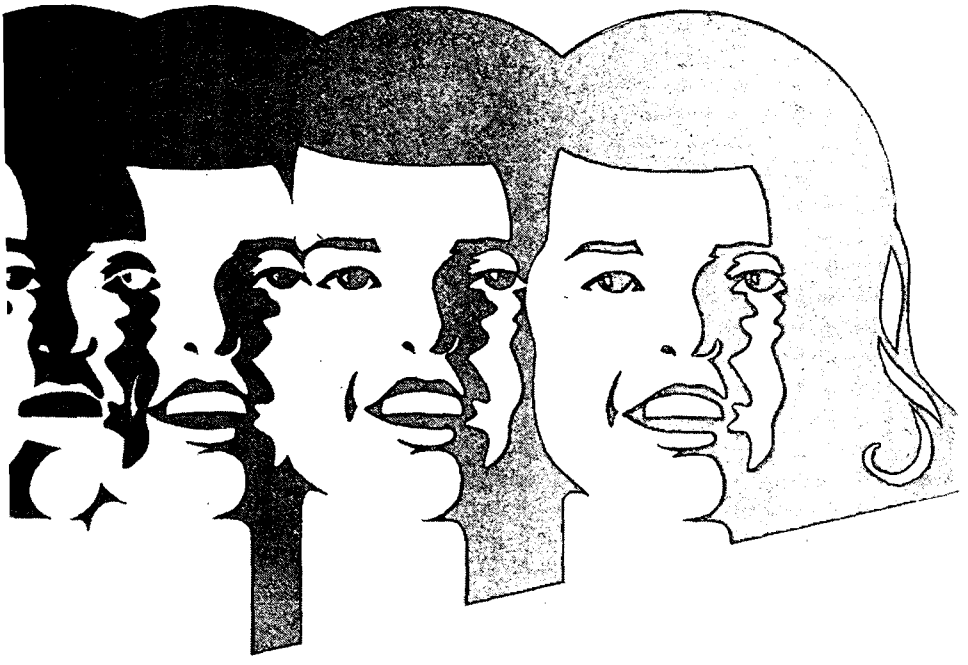

The author lives in Blairsville, Georgia. Her book, *The Making of an RN*, about her experiences in nursing school, is just out from Zebra Books.

It was going to take everything he owned, but it was worth it—it had to be worth it.

The man across from him was saying something: ". . . understand our procedure thoroughly, Mr. Gordon."

"What?" Steven stared at the man, then lowered his gaze. "I'm sorry. What did you say?"

Crenshaw leaned back. "We understand your stress level is high. We expect that. But before we proceed, you'll have to understand exactly what it is we offer." He leaned forward abruptly and touched a code on the flat panel in front of him. "Perhaps a drink? What

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would you like?" Then without waiting for an answer, Crenshaw pressed another button. "Try one of these."

A narrow door slid open at Steven's elbow. He stared inside at the amber cube for a moment. He really didn't want a drink. Still . . . maybe he needed one. He reached for it, pressing it between thumb and fingers. When the drinking tube emerged, he took a sip, then another. "Thank you." He could feel it begin to take hold almost at once. He could imagine the drug entering his bloodstream, slipping into his brain—smoothing little jagged edges from his nerves, patching torn fragments of his mind, fitting the inner parts of him together with a transient glue.

"Better now?" asked Crenshaw.

He nodded. "Better." For the moment. Better to hang suspended by a chemical than to plunge into the valley once more—the valley he had crawled through ever since Lisa . . . He forced himself to think the words slowly, emphatically: ever since Lisa had died.

"We have to be very careful, Mr. Gordon. People in stress sometimes hear what they want to hear. There are things that we can do—and there are things we cannot. You need to understand the difference." Crenshaw's stern gray eyes grew softer as he said, "Your little girl . . . Lisa, was it? You wish your little girl to be resurrected?"

Despite the drink, he felt his face twist; he masked it with a hand. The moment passed and he was able to look at Crenshaw again. He found his voice, "I want her back."

"Listen to me carefully," said Crenshaw. "You will be able to see her. At first, there will be only a suggestion of her; later, it grows more distinct as the re-collection goes on. You will be able to see her, but you won't be able to touch her or hear her."

"But I thought—" He clasped one hand in the other, running his fingers over the junction of thumb and palm.

"Let's start with your thought, Mr. Gordon. Your thoughts are what you are. Your brain is the generator—chemically, biologically. Your thoughts are a by-product, so to speak, of the generated energy." He smiled gently at Steven. "If it weren't for the pioneering work of Penrose, we might never have known." He popped upright in his chair as if for emphasis. "Twistors have no mass, you know. They were discovered by inference. Every thought, every memory is made of billions of them. With our process, we can re-collect them around a biological template." Crenshaw stared at him sharply. "Did you bring what we asked? Did you bring the template?"

Steven felt a blank look come into his eyes. Then remembering,

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he reached into his pocket and brought out the little gold locket. He held it in his palm for a few seconds, then awkwardly opened it. Coiled inside was a curl of baby-fine blonde hair.

Crenshaw nodded. "Now, let me answer your questions." When Steven didn't speak, he went on. "I know you have questions. There are always questions."

He looked down at the little locket, at the pale, tiny curl. "You said that twistors—the ones that make up the thoughts—you said that they don't have mass. How—how can I see her then?"

"No. They don't have mass. They're not particles at all. But one—a single twistor—can produce a photon or a neutrino. Two can produce an electron. The more twistors that combine, the more building blocks we have. The process attracts them to the template."

"Then—" He looked down at the locket once more, "Then what you . . . re-collect will really be my Lisa?"

"Energy is never lost, Mr. Gordon, only dissipated." He leaned forward and said in a low, but emphatic, voice, "We *will* collect the spirit of your little girl—just as surely as drawing iron filings to a magnet."

"There you are," she said as he opened the door and stepped into the bright room. At its center in the tiered, circular kitchen hub, Anne stood, meat-cleaver in hand, before an array of thinly sliced onion rings and crescents of green peppers. "I called the office, but Cindy said you saw your last patient at four. Where did you go?"

In answer, he kissed the nape of her neck, burying his lips in the soft wisps of honey-blonde hair that curled there. The color Lisa's would be—would have been—when she grew up.

"Never embrace a woman with a meat-cleaver in her hand." Anne smiled and ducked under his arm. "You'd better let me chop if you want dinner tonight. We're having tempura." She reached for a bunch of celery. "It's a lot of bother, but I felt like it."

Answering his puzzled look, she said, "I'm giving Oscar the night off."

In response to its name, the kitchen servo said, "WAITING." It—he, as Steven thought of him—had been dubbed Oscar from the day he was installed and they had been struck by the sentence in the owner's manual: *Your Omni-Skilled Chef is an Automatic Restaurant.*

"WAITING," Oscar repeated.

"Well, if you insist." Anne perched on the stool in the center of the hub. "Above."

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"ABOVE." The stool rose to the second tier and Anne extracted a ginger root from the crisper. "Below," she said.

"BELOW." The stool sank to the lower tier.

"There's a bottle of wine in the table cooler. Get it?" she said to Steven with a sidelong look.

He fingered the booklet Crenshaw had given him, wondering whether it was the right time to tell her about it.

"What's wrong?"

"Nothing." He tucked the booklet by his plate.

"What's that?" The bright blade of the cleaver flashed as she cut a slice of ginger and then struck the flat of the blade against it with her fist. The sharp odor of crushed ginger filled the hub.

"Oh, nothing." He wouldn't tell her about it now. He'd wait until later—after dinner, after the wine. He took the green bottle out of the cooler and drew the cork, automatically squeezing it between thumb and forefinger. He poured two glasses and placed one at Anne's side.

The cleaver rocked under her hand as she roll-cut the celery into pale green wedges.

By way of conversation he said, "Surely Oscar can do that. I can program him—"

She shook her head as Oscar responded to his name with a "READY."

"Don't you dare," she said with a grin. "If you do, I'll hand him this cleaver and tell him you're a side of beef. After all, the guest chef ought to be able to keep a few secrets from Oscar."

"READY."

"It's your night off, Oscar. Be happy."

"BE-HAPPY IS NOT PROGRAMMED."

"Well, we'll fix that." She hopped off the stool and engaged Oscar's learning mode. "Be happy," she said. "Above."

"ABOVE." The stool rose to the second tier.

"Fast around, fast around, fast around. Wh-e-e-e!"

"FAST AROUND, FAST AROUND, FAST AROUND." The stool whirled. "WH-E-E-E."

She giggled at Oscar's dervish effect. "Technology. It's grand. But it's good to get away from it for awhile. It gives perspective."

He stood staring at her, wondering at her resilience, her ability to laugh again. It had been just three months—three months since the accident. He glanced at the booklet tucked beside his plate. The wound was still too fresh for him.

He sipped the tart, white wine and watched as she fished a handful

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of peeled shrimp and expertly transformed them into pale butterflies with curving scorpion tails. Her slim hands moved deftly, working the baskets and plates of crisp vegetables as surely as she worked the clay in her studio. Tempura as art, he thought—a collage. Her hands were beautiful. Lisa's would have been like that. Lisa's . . . . He felt the cold move through his belly again; he felt the emptiness it always brought. Lisa, six years old, forever. Caught in a little stack of picture albums and tapes, and memory—all that was left now. Nothing more, except a wisp of a curl in a locket.

With twirling chopsticks, Anne dipped the shrimp and vegetables in thin, iced batter and plopped them one by one into smoking oil that smelled of ginger.

As they ate, he stole glances at the booklet. As if reading his mind, Anne nodded at it. "Going to tell me now?"

He couldn't find the words. Instead, his fingers closed over the booklet and he handed it to her.

She read it in silence, keeping her eyes on its pages, her head bowed over it. Not until she had finished did she raise her eyes to his. With a start, he saw that they were filled with tears. Embarrassed, he looked away.

She sat very still for a moment. He heard the thin sound of her held breath escaping. "Oh, Steven." She shook her head in an almost imperceptible movement. "You can't want this. You can't."

His voice sounded strange to him—prim, chilly around the edges. "I've given them a check."

"Without asking me?"

He had no words to answer her; he nodded.

"You did something like this without asking me?" Her eyes reflected a hurt so great that he shrank from it.

"I gave them a lock of her hair."

"Her hair?" Her face twisted. "You took my locket then. Oh, Steven."

"I—I couldn't help it. I missed her so much."

She was on her feet, turning from him, running into the next room. He followed. She stood by the window and leaned her forehead against the pane.

He touched her shoulder. "Anne?"

She whirled toward him, flinging her words like weapons, "It's always you, isn't it? 'You miss'; 'you need'; 'you want.' Did you ever once think of me? Lisa was mine too, dammit—mine. Part of me, from my body."

He reached for her and recoiled as her palm stung across his cheek.

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She ran from him then. He heard the lock of the bedroom door turn, shutting him out.

He poured the rest of the wine into a glass and took it into the empty living room. The setting sun blazed pink, shading quickly to purple, then gray. He closed his eyes in the dimness and sipped again from the wineglass . . .

"Grown-up lemonade," he had called it.

"Me too, Daddy."

Grinning, he poured her lemonade into a wineglass and repressed a smile as Lisa, in imitation, sniffed it deeply.

"Know what, Daddy?"

"No. What?"

Her gray eyes were serious. "I've been thinking and thinking. And now I know what I want to be when I grow up."

"What's that, Pooh Bear?" he asked, reverting to her baby name.

"Oh, Dad-dy." Her nose wrinkled in disdain. "I'm not a baby. I'm in the first grade."

He grinned, "Well, almost. In September you will be."

"But I went in the first grade at graderation. Miss Osgood *said*."

He stared at her solemnly. Kindergarten graduation. Lilliputians in minuscule caps and gowns. "Then if Miss Osgood said, it must be so."

"Anyway, I've been thinking and thinking, and I've decided." She paused dramatically, a trait she had inherited from her mother, he was sure—the dramatic-effect gene, found at the apex of the X chromosome.

"And what have you decided?"

"I'm going to be a 3V singer and then a sickologist just like you."

Just like Daddy—a clinical psychologist—dealer in hopes and dreams and fears. Mitigator of guilt in everybody except himself. . . .

He sat alone in the deepening shadows of the room and felt the cold edge of remorse rise in him again.

There had been no room in that day for cold. When they opened the doors, the warm June air caressed their skin and bore scents of hemlock and mountain wildflowers. Lisa exploded from the car and ran with shouts of glee toward the old cabin.

Anne, struggling with two bags of groceries, grinned at Steven. "It's always strange and new to her when we come up here."

"To me, too." He hefted the suitcase with one hand, and with the other caught at a low branch of dogwood and pulled it from Anne's path.

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"Let's live here," she said lightly. "All the time. We could live on roots and berries."

"And love." He reached beyond her and thrust the key into the lock. The door fell open to the pungent smell of cedar. "But if we lived here, where would we go on weekends?"

"Back to Atlanta," she laughed. "Where else?"

While Anne put away the groceries, Steven followed Lisa up the little ladder to the sleeping loft. He gave a boost to a small blue-jeaned rear and in return almost received a smack in the nose from a pair of tattered red sneakers as Lisa reached the floor of the loft and turned to face him. "It's still here, Daddy. My bed's still here."

"So it is." Stooping beneath the low ceiling of the loft, he unrolled her little sleeping bag. "Tired, honey? Want to take a nap?"

She shook her head. "I want to go swimming."

"I'm afraid the lake is still too cold. But it's not too cold for the fish. Maybe we can catch some." He poked his head over the loft railing. "How does that sound, Anne?"

She glanced up from the tiny Oscarless kitchen. "Not for me. You two go. I have another project. Did you see those blackberry bushes on the way in? They're loaded. How about blackberry cobbler after the fish fry?"

Worn out by trying to keep up with his rambunctious daughter, Steven stretched out in the late afternoon sun on a wooded spit of land within view of the Lake Notteley dam.

"How come the fish didn't bite, Daddy?"

He felt his eyes drag shut. "Guess they were sleeping." He blinked and looked up at the sky again. "Guess they were tired out after the drive up here."

"That's dumb. Fish don't drive, Daddy."

Drowsily he looked up. A large eagle, wings outstretched, rode an updraft far above him. "You're absolutely right. Fish don't drive; they fly."

She laughed obligingly and scrambled to her feet. "Birds can catch fish. Can't they?" She was running along the edge of the trees, arms outstretched. "Look at me, Daddy. Look at me. I can fly."

He grinned lazily. "Stay away from the bank, Lisa. It's a long drop down to the water here."

He hadn't meant to fall asleep. He meant only to rest for a few minutes, deliciously supine under his pine tree in the warmth of the sun. He hadn't meant to sleep at all, but he had been up late last night finishing that book. And up early that morning. Not more

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than five hours' sleep, all told. He'd just rest his eyes awhile.

The sun was a red disc lowering behind the mountains when he woke. Disoriented for a moment, he raised himself on one elbow and looked around. The wind sighed through the pine needles. "Lisa," he called. "Come on, honey. It's getting late."

He got to his feet, and when he heard no answer, called again. When he still heard no answer, his voice took on an edge and he walked quickly through the woods toward the steep bank that dropped so abruptly to the water.

He looked down, and in relief saw nothing but a straggling bush clinging to the nearly vertical wall of clay. Whirling toward the woods, he cupped his hands, calling again, "Lisa . . . Lisa."

When again he heard nothing but the lap of water far below him and the sough of the wind whispering through a million needles, he felt a cold knot form inside him. Stalking the edge of the lake, he stared across at the labyrinth of inlets and coves and tried to make out the figure of a small girl wearing blue jeans and bright red sneakers.

He called again and again, not realizing that his voice had grown hoarse. He was running now, along the high banks following the ragged edge of the lake. Then, knowing that she might have gone the other way, he retraced his steps, circling beyond, then back.

He had to have help. He thought of the campground a mile or so beyond and ran to his car, but the thought of leaving her alone there took away his breath. He pressed the horn once, then twice, then twice more. Its blast struck against the bulge of mountains across the water and echoed faintly back. When the echoes faded, the silence they left caused him to shatter it with more cries of "Lisa . . . Lisa. . . ."

At last he started the car, telling himself that she was there at the campground waiting for him, that she had somehow lost her bearings and had headed there. She was a smart girl. She knew about the campground. She'd be there waiting for him. She must have been on the road. Playing on the road. She was just lost. After all, from the road each little finger of land looked the same—except for the campground.

He swung the car around and headed down the dirt road, turning at the dam. The lake was to his left now, to his right the steep spillway of the huge TVA dam, its waters plunging down the rocks hundreds of feet below.

She was just lost, he told himself. Just lost. Please God let her be lost.

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It was late when he returned to the cabin. He moved slowly and his face was expressionless. He faltered once on the way to the door, but the sheriff's deputy to his right took his elbow, steadying him. The sheriff walked to his left, matching his long strides to Steven's slower ones.

As they moved toward the steps, the door fell open, silhouetting Anne in the light from the cabin. "Thank God. It was so late. I was so scared—" She stopped short, then recoiled at the sight of the two strangers, at the sight of her husband carrying a single red sneaker with gray, frayed laces.

The sheriff clutched his hat between his hands, twisting its gray brim. "Ma'am, your little girl is missing."

She stared at him without seeming to comprehend. They stood clumped at the door until, in movements underwater slow, she turned aside and let them in. The odor of blackberry cobbler mingled with the smell of cedar. A frying pan of cold hamburgers stood on the stove next to a package of buns. The table was set for three.

"We'll need a LAMET," the sheriff said to his deputy. The man nodded and turned to Steven. "Where did your daughter sleep, Mr. Gordon?"

He turned to the deputy without comprehending. "What?"

"We need a sample for LAMET."

He stared at the man as if he were guilty of a crude joke. "What did you say?"

"It's a test, Mr. Gordon. We test a biological sample of the missing person. The LAMET system can read just about anything we hand it: hair, skin, bone fragments, urine. If you can show us where your daughter slept, we can probably get a hair sample."

"But why?"

"LAMET will tell us if your daughter is alive, Mr. Gordon. Or if she isn't."

Huddled together in the sheriff's office, they waited for the mobile lab unit to come from Atlanta.

Anne turned her stricken gaze toward the sheriff and for the third time said, "You're sure they're still searching?"

He sucked on his cold pipe and looked at her with wise, sad eyes that had seen too much of pain. "Ma'am, the Union Rescue Squad is the best around. And they know these hills. They'll not stop looking for her, Mrs. Gordon—men nor dogs."

"When they do—when they find her you said they'll take her to the hospital. She'll want us—she'll want her mommy."

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He indicated the radio console at his desk. "When they find her, we'll know it. I'll have you at the hospital as quick as they get her there."

She stared at the receiver as if willing it to respond.

The outside door sighed open, spilling chill night air inside. "The G.B.I. lab van is pulling in," said the deputy.

The sheriff nodded and lit his dead, battered pipe.

Anne shivered and crossing her arms, ran slim fingers over the thin sleeves of her sweater. Steven wrapped his arm around her shoulder in an automatic response. He heard her say something. "What? What, honey?"

She caught her lower lip between her teeth and leaned against him, pressing her face to his shoulder before she could say again, "It's cold. It's getting cold out there."

He couldn't answer. He clenched his jaw and stared at the floor. And he thought of a little girl alone in the night, a little girl with no sweater and only one shoe.

The door opened again and a young, uniformed woman with skin the color of butternut walked in. She paused for a moment, her soft black eyes glancing at Steven and Anne, then toward the sheriff. "If you want more than one test at full-frequency, I'll need auxiliary power."

"Hook her up, Rondall," he said to the young deputy.

In a minute, a long cable from the van snaked into the room and the deputy plugged it into a red outlet near the floor as the sheriff handed the woman a small plastic envelope containing a tangled wisp of pale hair.

The girl took the envelope and turned to go out.

Steven was on his feet. "I'm going with you."

The technician looked at him for a moment; then she said evenly, "All right."

He followed her into the van, stooping a bit as he entered.

She flicked a switch and brighter lights flooded the interior. He stared in bewilderment at the array of equipment.

She took a seat at the single chair and looked up at him. "I'm sorry there's no more room." As she spoke, her hands moved busily, opening the envelope, extracting the fine wisp of hair with small tweezers, placing the hair in a thin, concave slide. "Do you know how this works?" She nodded toward a black box with the raised silver letters **L.A.M.E.T.—System 120.**

He shook his head. He had read something about the newer police techniques. He tried to remember. "Isn't there supposed to be a

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screen there?"

She sealed the little slide and inserted it into a small opening marked SPEC. PREP. "A stage, you mean?" She shook her head. "You're probably thinking about LIMBO. That's the Latent Image Matrixed Biological Organizer. We don't handle LIMBO specimens on the road. There's usually no rush for those, anyway. LIMBO analyzes remains for positive I.D. —bone fragments, ashes, hair—so on. That is, in department work. A few commercial establishments use LIMBO for resurrection of the remains." She pushed a button and the slide disappeared inside with a faint click.

He leaned against the door of the van; he felt shaky, as if his blood sugar had suddenly plunged.

"LAMET-S stands for Light Activated Matrix-Encoded Twistor System. It'll take a few minutes for the specimen preparation." She half-turned to face him.

He felt sweaty; nausea skittered in his belly.

A hand touched his arm. "Are you all right?"

He swallowed and managed to nod.

She looked at him uncertainly. "Maybe you'd better go lie down."

He shook his head. "I'll be all right." He waved a hand toward the machine. "Tell me how it works. Just don't stop talking. Please." If she stopped talking, he thought, too much was going to rush into the void. Too much was going to echo in the silence.

Distressed, she stared at him. "Uh, the slide's not ready yet. When it is, this light comes on." She showed him a dark amber square. "We're looking for a sound pattern. We get a printout too. Here. I'll show you." She reached into a small compartment. "I made up a slide of my own hair—for calibration purposes." She popped the slide into a slot marked SCAN. "Listen."

A low tone began, a soft throbbing note that rose in pitch slightly, then leveled off. She tried a smile at one corner of her lips, "That's me. Hale and hearty." The smile flattened and disappeared as the amber light came on—Lisa's slide was ready. "I think you'd better go back inside," she said. "I'll be in soon."

"No." His fingers touched her shoulder and closed tighter than he realized. "Do it now."

She moistened her lips, then inserted the slide. The SCAN light came on.

At first he thought it was the wind. It started faint as a whisper, growing until it blew its sharp, cold draft across his soul, until there was nothing left in his mind except the howling wind and the red LED words: **DISRUPTION PATTERN.**

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He was outside the van somehow, kneeling in the dark, emptying his stomach onto the rough concrete beneath him.

The girl's hands steadied him. Her voice was stricken with remorse. "I'm sorry. I shouldn't have let you stay. I'm really sorry."

And when he was able to stand at last and lean against the van, he heard her whisper, "There's a LIMBO, Mr. Gordon. In Atlanta."

. . . It had taken him three months to find the courage to seek out Crenshaw. He sat alone in the darkened living room and tried to remember the man's words: "Every thought is made of billions of twistors moving at the speed of light."

Every thought. It seemed to him that his own zigzagged in drunken chaos around him, breeding their electrons of memory until the weight of them was too great to stay aloft. He stretched out his hand and touched the tabletop beside him, half expecting to feel the debris of his mind like dust beneath his fingertips. As his touch grazed the cool, clean surface of the table, the bedroom door clicked open and he heard Anne in the hall.

She crossed the darkened room in silence and leaned against him, her hair sweet and soft against his throat, her wet cheek touching his.

Crenshaw cleared his throat, "Sometimes these things happen, Mr. Gordon. Not often, but sometimes."

"It's been two weeks now."

"And fourteen weeks since you lost your daughter."

"You said I'd see her in a few days."

Crenshaw leaned back and tented his fingers over his belly, "That's usually what happens. But once in a while we find a case like Lisa's."

"A case?"

"Usually the departed's thoughts tend to remain close by for a time. Of course, you have to realize that 'close' is a relative term. Twistors travel at the speed of light, Mr. Gordon. With most templates we can re-collect within a week or so—from here, from there. They're orbiting, you see—eccentric individual orbits something like tiny comets."

"And Lisa?"

"We have part of her. Nothing you can see yet." Crenshaw stared past Steven as if he looked through the paneled wall at something far away. "I like to think of them—the ones like Lisa—as special." He smiled at Steven then. "Free spirits, Mr. Gordon. Finding their

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own path to the stars." He popped upright with a creak of his chair. "But don't you worry. We'll get her back. It just takes a little more time."

It began with a faint mist, a thin golden nebula swirling above the stage. Each day as he came and sat alone in the darkness of the viewing room he could see it grow. Now he imagined that he could make out her features: the shadows that would soon be clear, gray eyes; the suggestion of a tilted nose, a little mouth. No, not quite. Yes. Yes, it was her mouth. Moving. Forming words? Could she? Catching his breath, Steven leaned forward and touched the transparent barrier between them. He stared at the moving patterns without blinking until his eyes were quite dry and strained. And, as he had done each night that week, he lost all track of time.

Anne was in bed when he came in. She didn't look up as he touched her shoulder. Instead, she stared at her book as the next page flashed on and its music whispered in her ear.

"I'm sorry I'm late," he said.

She didn't speak, but he caught the pain in her eyes as the pages of her novel flashed by too fast for reading.

He ate alone, extracting his dinner from Oscar, whose uncomplaining voice was the only one he heard that night.

He found it hard to keep his mind on his patients the next day. The last, a spare, black woman of fifty, struggled with her guilt and grief over her youngest son who had been sent to the penitentiary in Reidsville.

"You mustn't blame yourself," he told her absently and sent her on her way half-an-hour early. She was scarcely gone before he left the office and found himself once again in the little darkened viewing room.

Within the stage, a restless shadow moved and became a plump arm, fingers outstretched toward him. The image wavered, faded, formed again.

He caught his breath and stared as a small face flickered in a halo of pale gold dust that shaped itself in shadowy curls and tendrils.

He formed her name silently. And in answer, he saw her lips part and move until the shimmering image writhed away, reformed, then faded again.

He had to tell Anne. She had to see. Still staring at the twisting shadows of his child, he moved toward the door.

Anne stood outside the viewing room and leaned against the wall.

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The blue-white light of the hallway accented the paleness of her face and the dark smudges that underlined her eyes.

"Don't be afraid," he said, taking her hand, drawing her toward the door to the little cubicle. "She's trying to speak to us. I know she is."

She hesitated, large eyes searching his, fear and hope flickering in them. Then she stepped toward him and he opened the door.

Her hand felt small and cold in his as they stepped inside. She stood by his side and stared through the window. Beyond, the transient image of a little blonde girl wavered in a narrow shaft of light like a butterfly caught on a pin. Plump little arms thrust outward at shoulder height. The last words he had heard her speak came to him: *Daddy, I can fly.*

He saw her small mouth move then and writhe open. "Do you see? See that? She's trying to speak to us."

Anne's hand trembled as it drew away from his. He placed his arm around her shoulder. As he did, he felt the shaking tremor of her body. Dismayed, he stared at her. "Don't you see, honey? Don't you see?"

She pulled away, trembling so violently now that her voice when it came was an anguished stammer, "Oh, God . . . she—she's . . . screaming. . . ."

Then she was gone, running from the little room. The open door threw a rectangle of blue-white light over him as he stood alone and listened to the echo of her footsteps fade and disappear.

He stayed in the cubicle until very late that night. When he came in, Anne was asleep, her hand across her eyes, palm out as if to ward off a blow.

He undressed in silence and eased himself into bed. He lay rigid in the darkness until at last he fell into an uneasy sleep that was broken at dawn by Anne tossing beside him.

She whimpered once and he turned to look at her. She was wrong about Lisa. She had to be. It couldn't be true.

He lay there in the silence until the bright October sunlight crept into the room. He rose then, dressed, and called his office, telling Cindy that he was sick, telling her to cancel his appointments for the day. When he hung up, he turned and saw Anne watching him. Wrapped in her silent accusations, he turned and left the house.

Alone in the viewing room, he stared at chameleon shadows: Lisa's face, her reaching hands, dissolving into cloudy shape upon shape. Her lips again, moving. Her mouth. "Speak to me, baby," he whispered. "What is it?"

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As image shifted into image, he tried through will alone to freeze the quicksilver shadows into the likeness of a little girl. "Talk to me, baby. It's Daddy," he said to a swirl of golden hair that flowed into a silver comet's tail. He stared at a little face that shimmered and became the face of a fawn with Lisa eyes—eyes that reflected gold lights in the gray, gold that became star points in a blackening sky, then back to Lisa eyes again, brimming in a torrent of tears that became a waterfall cascading from the rocky face of a cliff.

He stared and whispered, "Speak to me." And finally he realized that she had. And when he knew what it was that she said, he began to weep.

He sat in the darkness with his head bowed and his face in hands that ran wet with tears. He had trapped her. Caught her and trapped her like a wild, free thing in a cage. And in the trapping, he had locked himself away too in a small, dark prison.

When he left the viewing room for the last time, he sent a message to Anne, and then taking the tiny package from Crenshaw's hand, he got into his car and began to drive.

October golds and reds lay on the mountains and the sky was a brighter blue than he remembered it could be. He stopped near the little cabin and began to walk along the banks of a stream that narrowed as he made his way up the ridge.

He stood on the high point of the land. Below, the stream was a thin silver ribbon on a patchwork of fallen leaves. He reached into his pocket and took out the small package. He opened it and gave its contents to a brisk wind that blew from the west, and with a sudden gust the little strands of pale gold hair swirled in a spiral of scarlet maple leaves against the blue sky.

I can fly, Daddy.

"Goodbye, baby," he thought; and yet as he walked down the old path toward the cabin, he knew he would always look for her. He would look for her in the sparkle of falling water as it danced from stone to stone. He would see her reflected in the eyes of small wild things. He would find her shining in the clear night skies of winter.

It was late when he came home. He let himself in and found Anne waiting in the kitchen for him.

"I let her go," he said.

"I know. They told me." Her eyes seemed bright and moist to him. "You must be hungry."

"Not very."

"A glass of milk then. Oscar—"

"READY."

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"A glass of milk."

As Oscar dealt with his innards and produced a glass of milk, Steven looked at his wife. "I almost lost you too."

"Well, you didn't," she said, and her eyes were suddenly brighter. "I guess you're stuck with me."

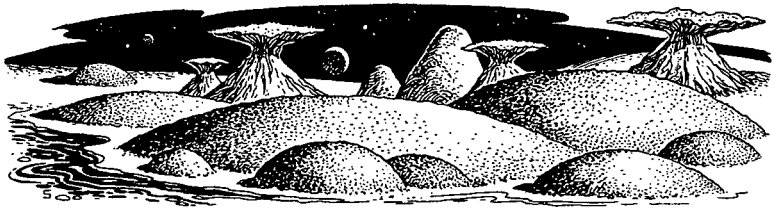
He sat down on the stool in the kitchen hub; and instead of reaching for the milk, he reached for Anne and pulled her onto his lap. "Oscar—" he whispered.

"READY."

"Be happy."

"ABOVE."

He clung to Anne, burying his face against her hair for a moment before he kissed her, as the stool rose to the second tier and began to turn. ●



WAY TO GO!

To vectors (math.) and vectors (path.)
And vectors (atmospheric),
Come sing we men of science all
This ringing panegyric.

In numbers, medicine, and clime,
You serve us to perfection;
Providing what so few men find,
You give our lives direction.

—Don Anderson

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DR. TIME

art: Roland Wolff

by Sharon Farber & Correspondents
(Susanna Jacobson, James Killus, and Dave Stout)

Write a novel for fun and profit!
Four experienced authors
show you how.

Dear Su, Jim & Dave,

I like neurology—if the patients are going to get better, they're going to do so on their own. All you have to do is diagnosis (the interesting part) and some maintenance and upkeep. On rounds today the resident pointed out that a patient had actually gotten better. The attending physician laughed. "Dr. Time," he said.

Hey, wouldn't that be a great title?

And speaking of literature, I've got two weeks (14 days) vacation coming up. What say we all write an SF novel?

Happy trails,
Sharon

Dear Sharon,

A novel sounds great. With two typewriters and a rigid schedule, the four of us should finish it well within the two-week limit. Jim even has a plot idea. It has to do with an obscure fact in smog chemistry, and it fits in with Trojan point space stations (equations to follow). All very high-tech, and it should grab the disaster novel crowd. I'll let Jim tell you the details.

—Su

Dear Su, Jim & Dave,

I love it. Let's tie the space stations in with astrology and numerology (666 and all that—devil worship never hurts any novel). Maybe some ancient astronauts too, and the secret of who really shot Kennedy.

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The main problem is (sorry, Jim) our hero is dull. Dull, dull *dull.* Needs personality.

Trails,
Sharon

Dear Sharon,

You think the protagonist is dull? Okay, let's make him a woman. In fact, why don't we make him a cynical, burned-out female third-year medical student with a penchant for dinosaurs and expensive scotch?

—Jim

P.S. Dave wants me to mention that our plot roughly complements a piece of Babylonian archaeology trivia, and we could work in an explanation of some bizarre point about Sumerian grammar that I don't even begin to understand.

Dear Gang,

Sure, Mesopotamian rhetoric, Celtic folk tales, Urdu metaphors—throw it all in. No heroic med students, though. Here's my idea: we divide the protagonist into three and make him a thin smog chemist who practices Aikido, a brilliant computer engineer with an accident-prone cat, and a large, good-looking guy who hangs around Berkeley coffee houses and refuses to learn to juggle.

Yours for more CT scanners,
Sharon

Sharon.

We get the point. One character. Let's be trendy and make her half-Oriental, half-Basque. Let's be trendier and make her a lesbian.

—Dave

P.S. Su here—How about making her lesbian siamese twins, one with a harelip, the other a centaur?

Partners in crime,

Dolphins. It *needs* dolphins.

—S

Dear Sharon,

Upon opening this weighty envelope, you will immediately recognize it for what it is, the outline of *Dr. Time.* We worked on it all week. Give us feedback. We should have it ready to write by the

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time you arrive for vacation.

—Su, Jim, Dave

P.S. We're leaving the details of the cancer transplant scene to you.
P.P.S. Jim's agent guarantees us a $5000 advance if we add some dragons and leprechauns.

Dear Su et al.,

Wonderful. It's utterly worthless trash and may pay my tuition. Let's switch the scene where the porpoise tells why Amelia Earhart killed Kennedy to later, and put more sex into the smog-chemists' convention. Have the cold-blooded associate professor really be a dragon. And, for god's sake, think up a pseudonym for us. I don't want my name on this atrocity!

—Sharon

Dear Sharon,

I don't know how to tell you this, but Dave was in Cody's Bookstore today and found a new paperback called *Chariots of the Dolphins*. It's just like our novel. Okay, there are minor differences. The Siamese twins were separated at birth; one has intermittent variegated porphyria, and the other is a unicorn. And the physics details aren't as clean as the ones in Jim's version. But anyway, it's all off.

(It just goes to show that when an idea's time has come, it comes.)

Sorry,
Su

P.S. Jim here—My agent is trying to get into nonfiction. Surely medical school could supply a little grist for that mill.

Dear Su, Jim & Dave,

I just saw the Hugo ballot, and there but for fortune go we. Yep, *Chariots of the Dolphins* is on it, along with *Space Station Soldiers, Nightmare Quest: Gorvalis* (Hmmph. *Dawning Light* was better), *Clones Have Wet Dreams Too II*, and, of course, *Return to Dustworld.*

Enough spilt milk under the bridge. We don't need this coprocephalic genre fiction; greater rewards await us. I'm on psych rotation now, and one of my patients is our ticket to the best-seller lists. She is schizophrenic and claims that Elvis Presley tells her what to do. I suggest the title *Advice from Beyond: Elvis's Diet, Fashion, and Sex Guide.* I get a week off between psych and surgery. Would the advance pay my air fare, do you suppose? Tapes enclosed.

Happy trails,
Sharon ●

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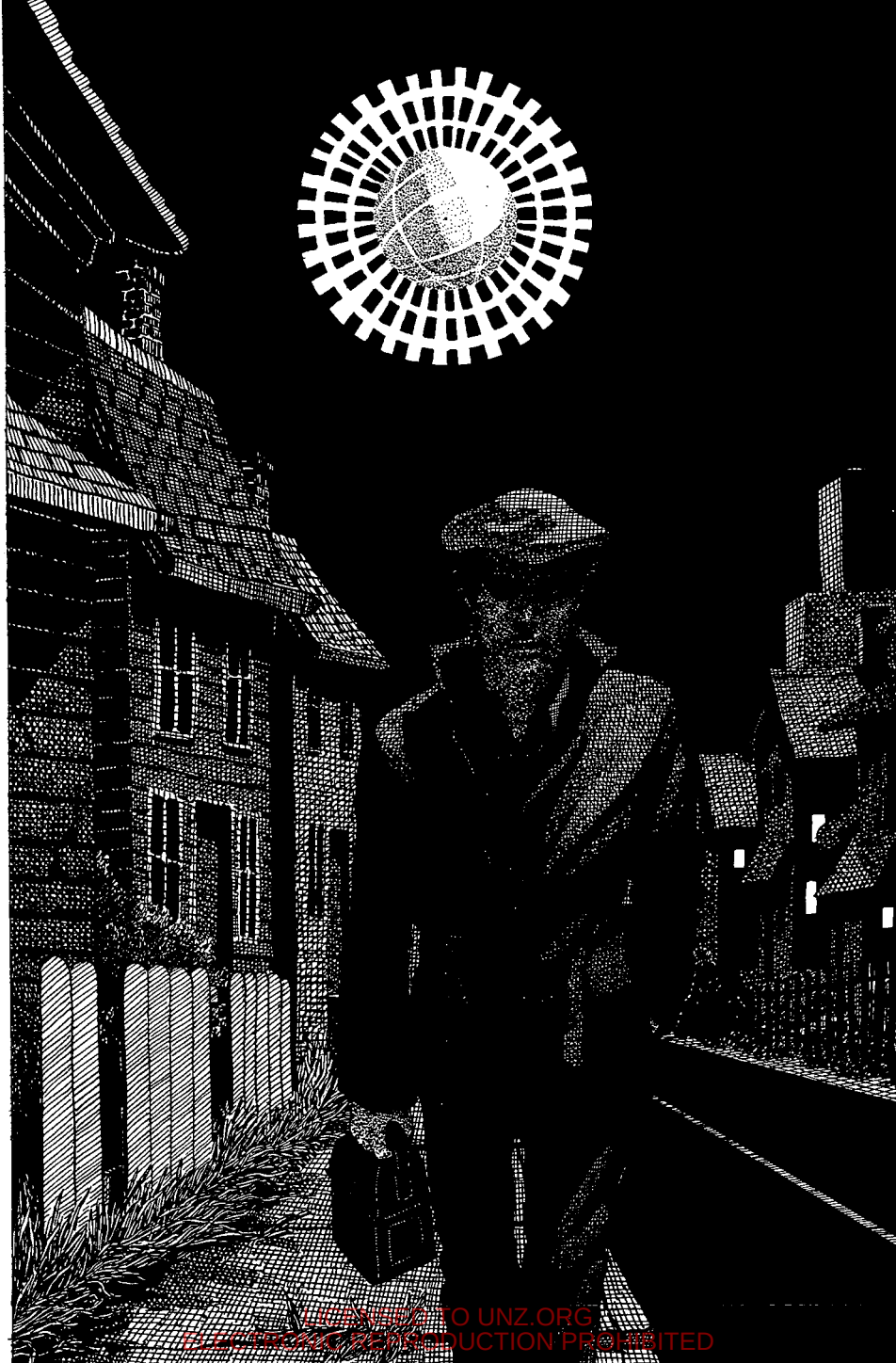

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THE MOON OF ADVANCED LEARNING

by Robert F. Young

art: Janet Aulisio

Mr. Young has, we're glad to say, been published in these pages so frequently of late that there's not much left to say about him here, except that his insight into the lives of steel workers does come from direct experience.

I watch the Moon of Advanced Learning rise as I walk home from work.

Within it the advanced thinkers are deep in abstruse thought.

Their giant minds are wrestling with the complex problems that confront mankind today.

The advanced thinkers who came before them were earthbound. They served only to complicate the problems. Perhaps to see with utmost clarity it is necessary to detach one's physical self from the subject of one's thoughts. Perhaps this is why NASA built an oversized aluminous thinktank in space—a visible symbol of knowledge—and put it into orbit between the real moon and Earth.

The real moon is not in the sky tonight. Only the Moon of Advanced Learning is, and the summer stars.

I am a steelworker. My father is also a steelworker. My grand-

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father was a steelworker before us. He worked on the furnaces, as we do. They were open hearths then, and sometimes during the heats the molten steel would eat deep holes in the furnace bottoms and around the tap-holes, and after a furnace with a bad bottom had been tapped, the laborers on the floor would have to fill the holes with dolomite and tap-hole mix, shovelful by shovelful, hour after hour. The laborers were called Third Helpers. My grandfather was a Third Helper for a long time. Later on, he became a Second Helper. Finally he became a First Helper. He was paid in tonnage as well as wages then.

Now all of the furnaces are oxygen, and almost everything is done by machine. I am a tester. I test samples of the heats to determine the quality of the metal. I could wear a white shirt to work if I wanted to, but I don't. The guys who man the machines would resent it.

I make good money. My father, who is a melter, makes even better money. My grandfather was ill-paid at first for all the back-breaking shoveling he did as a Third Helper. Then the Union really flexed its biceps, and the heyday of the steelworkers began. My father would be a rich man today if he had known enough to put some of his money away. My grandfather did know enough to do so, and now the interest from his savings abets his pension and social security. He and my grandmother now live in Florida. He plays golf the year 'round. That seems to be the reason so many retirees go to Florida.

The Moon of Advanced Learning is partially built of steel, but it is mostly composed of aluminum.

The electricars that have at last come on the mass market are made mostly of aluminum.

Shipbuilding has gone to the dogs, and there are no new skyscrapers going up.

The railroads can't afford to lay new rails.

As though the situation were not bad enough as it stands, foreign steel keeps pouring in.

American steel is sick.

Bethlehem is closing down its mill here in Chenango. The announcement came three months ago.

–Soon my father and I will be out of a job.

The aluminous little moon gazes benignly down upon me as I walk home. It was put into orbit shortly after Bethlehem announced its forthcoming shut-down.

Everyone hopes that the advanced thinkers are thinking what

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should be done about steel. But I know damn well they are not.

The Bethlehem mill virtually gave birth to Chenango. As the plant grew, so too grew the town. The houses and the business places multiplied the way grass does when you water it every day. The gin mills grew like weeds. The steel mill comprises the major part of the town's tax base, and although production at the mill is not what it once was, Chenango still remains big and bustling. The gin mills have survived well. This is partly because of subpay and unemployment insurance. When a steelworker is laid off, he has almost as much money to drink on as he had when he was working, and in most cases he would be called back to work before his unemployment insurance or his subpay ran out. But now none of the unemployed will be called back.

I have not been laid off yet, nor has my father. But soon both of us will be. I can find other work. It won't pay half as much as my present job does, but I will be able to get by. But my father, although not quite old enough to draw his pension, is too old to get a job that will pay more than peanuts.

What will *he* do?

The Moon of Advanced Learning has a per-square-inch albedo twice that of the real moon's. Its radiance puts to shame the feeble glow from the streetlights. Walking in its illumination, I can almost feel the thinkers thinking.

I am of Irish descent. Most of the people who live in Chenango are of Slavic descent, and there are also many blacks. The mill drew poor people to this part of New York State. And the poor people have become rich—or as rich as most poor people can ever expect to get. But most of their wealth lies in future paychecks. They have found out how wonderful it is to have Things, and they have bought Things on time; but now they are afraid that the Things will be taken away.

I have a new electricar. I could easily drive back and forth to work. But in warm weather I never do, since I live only a little more than a mile from the mill. So in warm weather I walk and let my wife have the car.

It is Friday night, and I have the weekend off. I have my paycheck in my pocket. I used to cash my paycheck in one of the numerous gin mills and get drunk, but this was before I got married. Now I take it straight home with me and cash it the next day in the su-

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permarket. I am not afraid to walk the streets of Chenango even though they are infested with kids who like to beat people up and rob them. The people they generally beat up and rob are old and feeble. They don't dare come near me. They remain in doorways and alleys until I have gone by. I am big and broad of shoulder. I could make mincemeat of them, and they know it.

My wife's name is Betty. After we got married, I bought a house in Chenango. Shortly afterward my father built a house in the suburbs and moved there. What the hell, he said, I can afford it, so why not? But he misses living in Chenango.

Although the house I bought is more than a mile from the mill, we get residue from the blast-furnace discharges, and during the warm months when we leave our windows open, we can smell the acrid fumes from the plant. But neither of us has ever minded the pollution. Betty has known it all her life, and so have I. Without the pollution there would be no mill and no paycheck and no house. We've always thought that whatever years the pollution might take away from us would be more than compensated for by the paychecks I bring home.

The pollution is not so bad now as it was in my grandfather's day. Precipitators have been installed at the mill at enormous company expense. Maybe they are one of the reasons this once mighty arm of Bethlehem has become atrophied. But the people of Chenango did not ask the company to install them. The people of Chenango are like the people of Donora, Pennsylvania. When, years ago, many of them died from fumes from a zinc processing plant, those who survived did not want the plant to move. They saw clearly that without the plant there would be no Donora, Pennsylvania, and that clean air would cost them their paychecks. People can live with pollution, but they cannot live without paychecks.

I wonder if the thinkers in the Moon of Advanced Learning have thoughts like these.

Probably not. Probably they are thinking about black holes.

I buy a sixpack in an all-night delicatessen and walk the remaining distance to my house. It is a well-built house with a full cellar, but the neighborhood is run down. I have painted it and have repaired the veranda, so it looks real nice. But there is nothing I can do about the houses next door or the houses across the street or the bottles the kids break on the pavement or the refuse that keeps accumulating along the curbs. Unfortunately the houses in this sec-

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tion of Chenango were built on narrow lots so that someone living in one house can reach out his side windows and almost touch the side of the house next door. And while all of the houses have long, narrow backyards, none of them has a front yard over three feet in width. But all of them, like mine, are well built. If they are never razed, they will outlast by generations the ranchstyle my father built in the suburbs.

Our electricar is parked in the street. I check to see whether it is locked; then I climb the veranda steps and knock on the front door, which Betty keeps locked after dark. She lets me in and we kiss in the foyer. When I am on the afternoon shift she always prepares a late supper for me. I wash my hands in the kitchen sink (I have showered at the mill) and sit down at the kitchen table and open one of the bottles from the sixpack. The beer is cold—the delicatessen keeps all its beer refrigerated. I drink it from the bottle. Supper is not quite ready yet. Betty knows I like to drink a beer or two before I eat. The kids are in bed—they have had a hard day playing. Janet is five. Little Chuck is four.

Betty is frying pork chops and boiling potatoes. She was a tall, dark-haired beauty in school. She is still a tall, dark-haired beauty, but she has gained weight. She goes to a weight-watchers class twice each week, but so far it has had no effect. Her bottom is firm and neatly rounded. That is the way they say it in books: firm and neatly rounded. She wears tight slacks to make it seem more so, but the slacks can't quite cope with the number of pounds she has put on around her waist. I do not mind this, but she thinks I do. She does sitting-up exercises every morning. Her father is a steelworker too, but unlike my father, he has thirty years in and is eligible for retirement and does not need to worry about the forthcoming shut-down.

As I finish my second bottle of beer, Betty sets the table. She always waits to eat supper with me when I am on the afternoon shift, and presently she joins me at the table. She has had little to say since I got home. She is quiet because she is scared. She has been scared ever since the company announced that the mill is going to be shut down.

In addition to pork chops and mashed potatoes she prepared a tossed salad and boiled corn-on-the-cob. She also baked a banana-cream pie. I have two pieces. She has only a sliver. "Are we going to your father's on Sunday?" she asks.

"He's expecting us."

"Why doesn't he ever come here when both of you get a Sunday

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off at the same time?"

"I think he likes to show off his new house."

"I think he's homesick for Chenango," Betty says. "I think he knows that if he comes to our house, he'll get more homesick yet."

"I don't see why. He sees the town every time he comes to work."

"Seeing it and living in it aren't quite the same thing."

She pours coffee and we sit there for a while talking about the kids. Neither of us brings up the subject of the mill. While she is doing dishes I go outside and stand in the backyard. The Moon of Advanced Learning is almost directly above the house. There is a reassuring quality about its light. The advanced thinkers are multinational. Two of them are Americans, one is French, one is an Israeli, one is English, and one is Norwegian. All have giant brains. Their avowed purpose, according to the media, is to improve the lot of mankind, but I do not think they are thinking of mankind in the present tense; I think they are thinking of mankind of the future. I do not think they are looking down upon us as their little aluminous world whirls round and round the Earth. I think they are looking at the stars.

Betty precedes me upstairs. I check to see if all the doors are locked. When I enter our room, she is kneeling beside the bed. Her hands are steepled on the bedspread and her eyes are closed. She is of Polish descent, and both of us go to early mass every Sunday when I am off, and take the kids with us. But I have never seen her pray at home before. Without saying anything, I undress and slip between the sheets. Presently she slips in beside me. Then I say, "Were you praying about the mill?" and she answers, "Yes." I do not say anything more, but turn off the light. We lie there in the darkness side by side, and then we make love.

In the morning there is a wind from the south, and the sky is a cloudless blue. During the week it was cool for this time of year, and now the weather forecasters are ecstatic as they promise a warm and beautiful weekend. After breakfast we take the kids and go shopping. I cash my check at the supermarket-office window. It is a big check; it needs to be what with the price of food. With kids, shopping is quite a chore. Janet wants everything she sees. Little Chuck is too young to know what he wants and keeps grabbing at bright packages. We return to the car and unload the two carts we have filled. Betty loves to shop. Her eyes become glazed as she inches up and down the aisles. She buys everything that is on sale, whether

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we need it or not. She thinks she is saving money. I am always tempted to point out to her that the only realistic way to save money is not to spend it, but I never do. With the money I make, there is no need to be frugal.

The supermarket is four blocks from our house. We drive home beneath a sky to which smoke from the mill has lent a yellowish cast. Many of the business places we pass are closed, their windows boarded up. There are numerous houses for sale. Employment at the mill is not what it once was, and although on the surface Chenango is still big and bustling, it has been gradually dying for years. My grandfather used to tell me how it used to be in the old days. There were twenty thousand men working in the mill then, and the unemployed used to beg at the gates to be let in so they could apply for work. No one dreamed in those days that the mill would ever die. It was as dependable as the sun coming up in the morning. But my grandfather is no longer interested in such matters. He is too busy in Florida playing golf.

Saturday afternoon I cut the lawn. It takes me only fifteen minutes. Afterward I replace a cellar window one of the neighborhood kids broke. Late in the afternoon I have a bottle of beer and sit on the back porch steps, watching Janet and Little Chuck play. We have steak for supper—tenderloin. Afterward I watch TV for a while; then Betty and I get dressed to go out. She puts the kids to bed, and a teenage girl from down the street comes in to babysit.

We go to Braidish's. We almost always go there Saturday night when I have the weekend off. Tonight we go with Ron and Dolores Krupak. Ron works with me at the mill, and he and Dolores are about our age. Braidish's is located near the outskirts of Chenango and is a notch or two above the average gin mill. On Saturday nights a dance band comes in at nine and plays till two.

We take a table near the dance floor and have a few rounds while the band is setting up. Betty drinks screwdrivers; the rest of us order beer. Usually she confines herself to two or three drinks, but tonight, even before we begin to dance, she has four. The band is an old people's band—it plays Lawrence Welk style and alternates between old favorites and modern numbers, which it plays exactly the same way it plays the old favorites. Tame stuff, but when you have a wife and two kids, it's time to start being tame.

Between dances the four of us talk of this and that, but never once does one of us mention the mill. Mostly we talk about our kids. Ron and Dolores have two boys and a girl. Betty keeps downing screw-

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drivers. I tell her to ease up, but she only grins and says Saturday night only comes once a week. She is tipsy when at last we leave. We go for coffee at an all-night diner. After one swallow of hers Betty gets sick and runs for the women's room. Dolores helps her back to the table. Shortly afterward we leave. Both Ron and I have driven our cars. As soon as I get home, I pay the babysitter and tell her she can go; then I put Betty to bed. I have never seen her drunk before. It makes me sad, particularly because I know why she got drunk.

My father's house has a big lawn in front and an even bigger lawn in back. Last year he had an in-ground swimming pool put in. The house is white-shingled and looks larger than it really is. There is a tiny porch in front and a big patio in back. The patio overlooks the swimming pool. All of the trees in the yard are young. Some of them are Schwedler's maples; some of them are silver birches. There are two dogwoods in the front yard. He cuts the grass twice each week from late spring to early fall; he has a riding mower. There is an inbuilt double garage, although he has only one car. In the backyard he has built a special shed to keep his tools in and covered it with shingles to match those on the house. I have never told him so, but despite its shingles it looks like an outhouse.

The minute we get there Sunday afternoon Janet starts hollering that she wants to go swimming, and Little Chuck joins her. My mother gets both kids into their suits, gets into hers, and soon Janet and Little Chuck are splashing gleefully in the shallow part of the pool under my mother's watchful eye. My father gets a sixpack out of the refrigerator in the kitchen, and he and I and Betty sit at the rustic wooden table he built for the patio. Betty refuses a bottle of beer—she is still sick from last night. My father and I drink our beer from the bottle. He is a couple of inches shorter than I, and stockily built. His barrel chest is no longer distinguishable from his belly. His hairline is receding, and his brown hair has flecks of gray in it. But despite the grayness and the lines in his face he does not look his forty-nine years.

Usually when we get together we talk shop. Today he does not even mention the mill. At the mill he works in Two Shop and I work in Three, and we seldom see each other at work. The last time Betty and I and the kids were out to his house he was depressed and said next to nothing all the while we were there. My mother reflected his mood. Today he is in excellent spirits, and my mother seems to be having as much fun as Janet and Little Chuck are as she monitors

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them in the pool.

I am determined to talk about the mill whether my father wants to or not. Its forthcoming shut-down is a fact that has to be faced. He is soon going to be among the unemployed, and if he remains among them, he is going to lose his house. Some way, somehow, he is going to have to find another job, and a good one.

But I do not bring up the subject of the mill directly. Instead I ask him how many more years his mortgage still has to go. "Twenty-five," he says. "Hell, you know when I bought the house."

"I didn't know you took a thirty-year mortgage."

"Everybody does these days."

"Young people do. How in hell are you going to pay it off?"

"You're worried about the mill, aren't you."

"Not on my account."

"Well, don't worry about it on mine."

"You owe for your car too. Not to mention the swimming pool."

"They haven't pulled out yet."

"They're going to."

"They only said they were going to. Things can change."

"There are two things that never change. Profit and loss. If they figure they can make more money or lose less money by pulling out, they'll pull out."

"When they pull out is when I'll start to worry," my father says. He takes a big swallow of beer.

Betty looks at him. "You believe, don't you?"

"You bet your life I do."

"I don't," Betty says. "But I keep trying."

I stare at her and then at him. "Believe what?"

Neither answers me.

I finish my beer and set the bottle on the table. "I'm going for a swim," I tell them.

I take each of the kids out into deeper water. "I can swim! I can swim!" Janet shouts, and I loosen my grip on her and let her paddle furiously till she begins to sink. Little Chuck has big blue eyes. He doesn't say anything when it is his turn, but his eyes get even bigger. "Swim! Swim!" he says after I take him into deeper water, and I let him paddle realistically away, all the while wondering what my father has up his sleeve that Betty doesn't quite believe in.

We have barbecued chicken for supper. My mother prepares it outdoors on the rotisserie after parboiling it in the kitchen. Bar-

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becued chicken, french fries, a tossed salad, sliced tomatoes and corn-on-the-cob. Betty and my mother have coffee, the kids pop. My father and I have beer. In the yard next door the people are having barbecued chicken too. It is a suburban custom.

Both the beer and the meal make me sleepy, and after supper I fall asleep on a lawn-style chaise lounge on the patio. It is beginning to grow dark when I awake. Betty has her bathing suit on and is in the pool with the kids. My mother and father are watching TV on a portable set they brought outside. "It'll be full tonight," I hear my father say.

"Yes," says my mother.

I realize they are talking about the Moon of Advanced Learning. "They can think better when it's full," I say wryly.

"I wonder," my mother says, "if they got my letter yet."

I sit up straight in the lawn chair and stare at her. "You *wrote* to them?"

"Yes. About the mill."

"Mom, they can't do anything about the mill!"

"Why can't they?" my father asks. "Why in hell do you think they were put up there?"

"Why, to think, of course."

"Right. To think. About us."

"But they don't think about us individually. They think of mankind as a whole—about how to keep it from going down the drain. They think about the growing population, about the dwindling food supply, about ecology—things like that. They think of our future."

"That's what I mean," my father says. "Our future."

"Dad, I'm talking about the stars. They're thinking of ways we might get to the stars. They're theorizing about space. About black holes. Black holes may be the answer."

"The answer to what?" my mother asks.

"To our finding inhabitable worlds."

"Nonsense," my father says. "They're thinking of this world and people like us. Probably they didn't know about the mill. But now they do—they must have got the letter by this time. I told your mother it wouldn't do any good just to pray."

"Pray?"

"Yes, pray. By prayers alone they might not have got the message."

"Now they'll know what we're praying about," my mother says. "They'll know exactly what mill we mean."

"They're not gods! They're six mortal human beings going round

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and round the Earth in an aluminum tin can!"

"Betty prays too," my mother says. "She told me."

"Look, it's rising," my father says, pointing to the east.

"Yes," my mother says quietly, leaning forward.

I do not look at the Moon. I look at Betty. She is kneeling at the pool's edge drying Little Chuck with a towel. Then she becomes aware of the rising Moon and turns toward it. She is still kneeling. She must feel my eyes upon her, for she turns back quickly and resumes drying Little Chuck.

Beside me my mother says, "I'll bet they can almost look down and see the mill."

"They'll never let it be shut down," my father says. "Not in a million years!"

We are a long time saying good-bye. My mother always hates to see the children leave. So does my father, although he pretends not to. I keep looking at this hard-working Catholic who has apotheosized six scientists who aren't fit to tie his real God's shoes. I keep looking at my mother. My mother wrote a letter to the men in the Moon. Please save our steel mill.

I drive home slowly. I can see the Moon of Advanced Learning above the housetops. It shines like a silver dollar. "Did you write them a letter too?" I ask Betty.

"No."

"I wonder if my mother sent hers special delivery."

"Don't make fun, Chuck."

"I'm not making fun. I just can't believe you people."

"What're we supposed to do? What am *I* supposed to do?"

"Guys like them developed the A-bomb."

"What kind of a job can you get compared to the one you have? We have a big mortgage on the house and we owe for the car, the refrigerator and the living-room set. And I can't work because of the kids."

"Well, at least you don't believe."

"No. Only hope."

It is well after ten by the time we get home. Betty takes the kids upstairs to bed, then calls down that she is going to bed herself. I tell her I will be up shortly.

I go out and stand on the back porch and look up at the Moon. It grins down at me.

A pantheon of six moldy old men.

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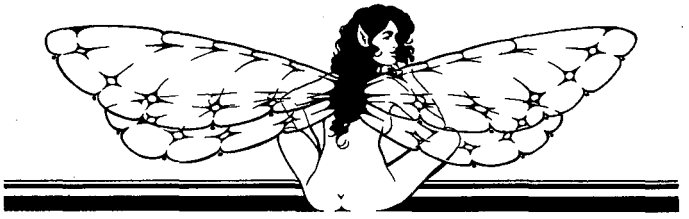
The upstairs lights in the house next door are on, the downstairs lights are out. Probably our neighbors are praying too. Please save our mill. Betty should be done by now. I reenter the house, lock the door and go upstairs to bed. ●



MARTIN GARDNER (from page 89)

THIRD SOLUTION TO DR. MOREAU'S MOMEATERS

Incredible as it may seem, the number of fins left in the tank is independent of the number of males!

Let x be the number of male fish, and $(4{,}996 - x)$ the number of females.

After 2/3 of the males are removed, the number of male fins left will be $5x$. To get the total number of fins now in the tank, both male and female, we add $5x$ to $5(4{,}996 - x)$:

$$5x + 5(4{,}996 - x)$$
$$5x + 24{,}980 - 5x$$

The x terms cancel out, leaving a total of 24,980 fins in the tank.

You could have guessed this, if you had the right insight, without doing any algebra at all! How? See page 165 for the surprising answer.

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THE PICK-UP

by William Webb

art: Janet Aulisio

William Webb is a freshman at Duke University. This is his first sale, although he says he's collected his share of rejection slips along the way. At present, his time is divided between writing, calculus homework, and looking for a summer job.

I'm the bartender at the Cosmic. You know the place—on the east side. You probably know me, too. I'm the tall, skinny guy. I work weeknights, mostly. Yeah, a little balding on top.

What's it like? They come in, they get scazzed, they tell me their troubles. And, for sure, there's a lot of troubles. Yeah, I got a few stories to tell.

Like this one character, Jack. I seen him around on Fridays tryin' to pick up a few dreamy nights. Doesn't do bad either. You can tell he's been in the business awhile.

About a month ago, he comes in plastined up pretty good. Real smooth character, but kind of glib for my taste.

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"The usual," he says, flashing me the whites. You can tell he's slammed up for a good time.

So I look half-impressed, mentating it'll help my tip. I fix him a Cosmonaut Double.

Anyway, he makes a few plays and gets brushed off.

Around twenty-one hundred you can feel the place picking up, just waiting for something to happen. I'm busy as hell. Then in walks this Zanadian, red hair, shimmer dress, the works. Oh sure, you see them on the video, but it's different in the flesh. There's a lot of long looks and whispering. Then, in a few minutes, the place is back to normal. Like I said, we get all types.

So she sits herself down next to Jack. Up close, her skin looks kind of clear white, like if you breathed too hard, she'd melt. The dress whirls around her like strawberry syrup on vanilla ice cream. And Jack looks ready to take a big bite. I mean, this girl was more than a novelty item. She put most of the regulars to shame.

"I'll take an Aqua Electric, on the rocks," she purrs.

Come to think of it, her face looks a little like a cat, too—kind of scrunched up at the nose and wide, but sexy as all hell.

I hand her the drink. I think she ordered it just to look nice in her hand, which it does. By now, Jack looks like he just stepped out of an airlock without a suit. I keep waiting for, "So, what's a girl like you doing in a place like this?" But the Zanadian beats him to it: "Do you come here often?"

Jack would have said it better, but the girl showed promise.

Jack smiles, almost shyly. I can't help wondering if maybe the hunter is becoming the hunted, so to speak.

Like I said, it's pretty busy, so I can't listen in too long, but I check back now and then. She does the talking, saying, "You know, we really have a lot in common," which seems funny, if you think about it.

In a murly blink, she'd paid the bill (with a nice tip). I'd never seen Jack work so fast. Now, you know me, I'm not the one to pry into others' flimbags. I couldn't let it rest, though. I pull Jack aside.

"Now, Jack," I say, "You know relations ain't the best between us Terrans and them," giving her a nod. "You better play it safe, you know?" I give him a wink. "We wouldn't want, well, an awkward situation to develop after this little encounter—"

"Don't worry, buddy," Jack says. "I know the rules."

"That's what I was afraid of," I say to myself as they're leaving. I keep wondering if it's possible . . . well, you know.

After they're gone, the video people come in and start asking lots of questions. They don't get much, though. Only the scazzed ones

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want to say anything, and I'm too busy to bother. Then the governor comes in with some others dressed in business bags. It figures, I think to myself; the government's always the slowest.

Anyway, for the next few weeks, Jack comes in even worse than usual. In terms of obnoxiousness, I mean.

Then he strolls in on Monday. That in itself ain't normal. He looks pretty down on it all, too. He gets into the bottle and starts getting intense on the video. Then that Zanadian broad comes on, and they give her name—Marique something. They're going on and on about her, and Jack drops his glass and coughs his drune all over the counter.

Naturally I ain't exactly pleased about his choice of expression. I ask him what's spacing with this Marique character.

He looks at me kind of funny and says, "Naw, you wouldn't want to know."

So I say, "No, really," getting ready for something big, because usually he puts on that toothy grin and babbles on.

He looks at me again, harder, and says, "Naw."

So I kind of shrug and finish cleaning up. As I turn back to polishing the glasses and brogleware, he looks up again.

"Okay," he says, "You were right."

I look real sad at him. I don't really care, though, because it happens too often to be a novel tragedy. Knowing him, I'm wondering why he's so upset.

"You got her pregnant."

Then he gets real mad all of a sudden. I'm hoping he doesn't make another mess for me to clean up.

"No, goddamn it! She's not a woman!"

He said some other things too, but they ain't worth repeating.

"So?" By now I'm really curious.

"So she's built different. The doctors explained it all to me. She couldn't give birth if she wanted to."

"So?"

"So it's not fair! She never told me—how was I supposed to know?"

"Know what?"

By now I'm *really* curious. But he just plops down a decacredit and pulls on his coat.

"Hey," I say, "you got a right to keep your problems to yourself." But I'm flyked that he didn't even give me a tip.

He turns to me with a crushed look, "Doctor says I have to give up drinking. I'll see you in about nine months."

Then he walks out. I laugh and laugh, because it looks like he's putting on some weight. ●

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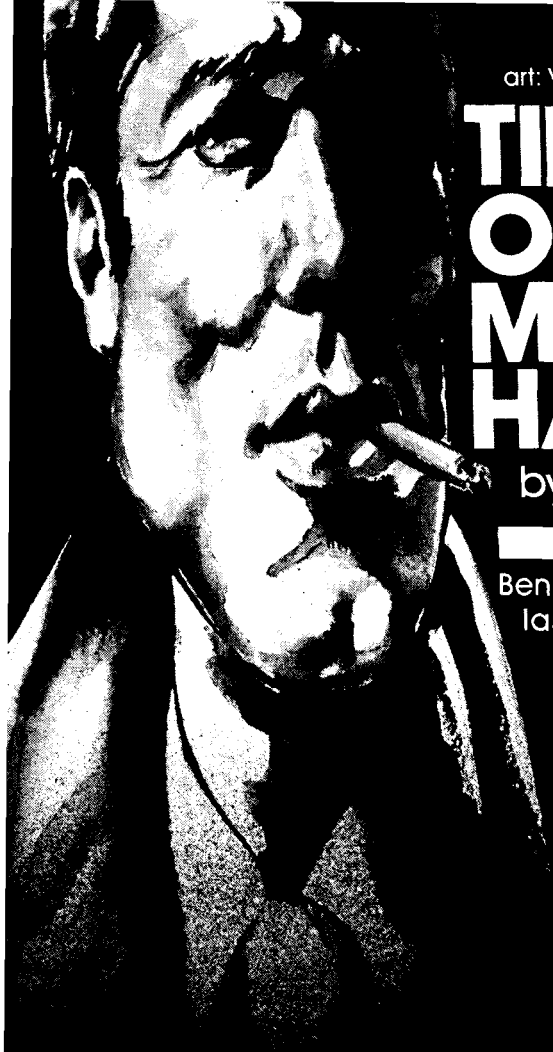

art: Val Lakey/Artifact

TIME ON MY HANDS

by Warren Salomon

Ben Hardy, Time Detective, last appeared in these pages in the May 11, 1981, issue, in "Time and Punishment." The author, a Florida attorney, says he plans to write one more in the series. We look forward to seeing it.

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ONE

You think you've got troubles? You don't know what troubles are. No one does unless he's in my line of work. Trouble is my business. I'm a time detective.

I was sitting by myself in a bar, in realtime, sipping a Scotch and worrying about Alexander's diary. A facsimile had turned up, with detailed notes on all of Aristotle's lectures.

Chester Semester, the archaeologist who discovered the book, had readily admitted taking it from Alexander's bedside chest one night, but he claimed he only borrowed it long enough to make a copy. Then he had replaced the original, and no harm was done—or so he said. History didn't seem to be affected by it, so maybe he was right.

But it bothered me. Sure, it's nice to discover an intellectual gold mine, and it's great that scholars will have their work cut out for them for the next several generations, but there's no free lunch for a time traveler, and nature keeps a strict set of books.

It's too easy these days for someone with no training to get his hands on a module and go storming through the centuries, ripping reality all to hell. Then someone like me has to go back and restore things to some semblance of the original sequence.

So there I was, nursing my drink, thinking about all the realities that ever were, when the most beautiful girl in the world walked over and sat down beside me.

"You're Ben Hardy, aren't you?" she asked. Her voice flowed over me and set my nervous system throbbing, as if I were a tuning fork made just for her.

I raised an eyebrow in her direction, not trusting myself to answer right away. She stared at me, her eyes deep, clear, intelligent. She didn't blink.

I had to turn away. I took a sip of my drink, put it down on the wet circle it had come from, then, hoping my voice wouldn't fail me, I said:

"Yeah."

"The temporal investigator?"

"Uh-huh."

"You're in business alone, aren't you? I mean, you're not with the government or anything?"

I lit a cigarette. "No. I'm not with the government." I let myself smile, but just a little.

"Then I've come to the right man."

I had no idea what she was getting at, so I nodded.

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"I need to hire you, Mr. Hardy. There has been—is—a conspiracy to shift reality out from under me—all of us—and you're the only one who can help me."

If I had a buck for every time I've heard that line, I'd be in good shape by now. Everybody's gone crazy since the discovery of time travel. Everyone sees reality-change conspiracies everywhere, and nobody knows what he's talking about—except for a few of us, guys like me, who make time our occupation.

My eyebrow must have gone up again, because she studied my face and said, "I'm not imagining things, Mr. Hardy."

"Who are you?"

"My name is Candy Goodbody."

I was in the middle of a swallow, and I had to struggle not to spray booze all over the place.

She closed her eyes, obviously a much-repeated gesture, then opened them and glared at me. "It's my real name."

"Oh," I said, after I got the booze down.

"What I have to tell you is very important."

I nodded again. "My services are expensive," I told her. "Not everyone can afford a temporal investigator."

Her gaze roamed over my unpressed suit, long out of fashion, drifted down to my unshined shoes, then came back to my face, partly obscured by the brim of my well-worn hat. Her beautiful lip curled, ever so slightly.

"You don't look expensive," she said.

Dames. Right away they try to put you on the defensive. You have to slam them in their places, fast, and the better they look, the harder you have to hit.

"*You* look expensive, Miss Goodbody."

"I *am* expensive, Mr. Hardy. I'm a whore."

TWO

I watched the smoke from my cigarette drift over the bar and asked: "How's business?"

"That's a stupid question. Everyone asks that." When I didn't respond, she said, "Does it look like I'm starving?"

No woman who looks as good as she did ever starved. She was well-dressed—not flashy, but rich. Beautiful women seem to defy the law of gravity. When they fall, they move up.

"Okay, so you can afford me. What's your problem?" The situation

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was disquieting. There I was with a time machine parked out back in the alley and I had barely two nickels to rub together because I'm so filled with integrity I'm incapable of making money, and now things had come to a state where a hooker was hiring me. It's times like this when I think I'm in the wrong business.

"Two men are in love with me."

I shrugged.

"One, the man I live with, is named Finkheim. The other is Gillotte."

I whistled. Those were the two biggest names in the mob. This dame was trouble.

"I see you know them."

"Only by reputation."

"Then you know how I met Max."

I could guess. Max Finkheim ran most of the business girls in the area, among his other enterprises. "You his girl?"

"Yes. His—and only his. I met him when I was first getting into the business, a year ago."

"So where does Vito Gillotte come in?"

"He and Max are business rivals."

"So?"

"I know. Competition between two underworld hoods means nothing to you. Bear with me."

I put out my cigarette and lit another. "Go on."

"Vito saw me with Max a few months ago. He's been obsessed ever since."

"How do you know?"

"He's told everyone. It's all he talks about. His men are worried about him. They say all he has on his mind is taking me away from Max."

"That's all very interesting, but why do you need a temporal investigator?"

"Vito would kill Max, but he can't. The syndicate would never let him get away with it."

I was starting to understand.

"And Max would love to kill Vito—in self-defense, of course." She was loyal, or she wanted me to think she was.

"Of course."

"But he can't, for the same reason."

"Yeah. The mob is trying to get away from killing each other off."

"That's right. There have been no killings for a couple of years now. They all got the word, from the top. They have to work out

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their problems like businessmen from now on."

"So they're thinking of time travel?"

"Exactly."

I ordered another drink for myself, and one for her, and I thought about it while the bartender went through the motions. If either of those guys could get his hands on a module—a time machine—and go back far enough to kill a parent of his rival, that would end his problem. The offspring would be wiped out of reality. People dream about that kind of thing all the time. Some actually try it. I suppose a few have succeeded. There's no way to know. Reality's a fairly loose arrangement these days.

"So you want to hire me to protect Max?" I had to think about that. I usually stay away from mob controversies. But if one of them was planning a reality change, that was different. I don't like people messing around with reality.

I don't even let myself mess around with reality, though I've been tempted. Once you start playing games like that there's no telling what might result. Even the most benign changes can have disastrous consequences. So I run around restoring the original sequence of events, which is usually a thankless job, and I spend what little money I make on maintaining my module, and on booze. I seem to spend the rest of my time telling potential clients I won't help them pull off their crazy schemes. And I won't, either. That's why I'm broke.

But this deal was different. It was a chance to stop a reality change before it happened.

"Actually," she said, "the problem is bigger than just protecting Max."

"How?"

"He has no parents. I mean, he's an orphan. He came here as a refugee. His parents, whoever they were, died in Europe during the war, and Vito doesn't know how to stop Max from being born."

"Then you've got no problem."

"Yes I do, and so do you. Because Vito's been spreading it around that if he can't wipe Max, he'll go back and wipe out all of his people."

I sat up straight. "Do you know what you're saying?"

"Yes. It's what Vito's been saying for weeks now. He plans to go back into Biblical times and destroy them all."

* * *

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THREE

I've heard of some crazy schemes before. In my business it's inevitable. But I'd never heard anything like this. I turned to stare at Goodbody.

"That's insane," I said. "Almost no one goes back that far. Any little thing can change our whole reality. Every now and then a university or some rich tourists put a trip together, and even that's rare. But one man, alone, untrained . . ."

"I know. But that's his plan. He's been bragging about it."

"Modules are expensive."

"He's got one. He can afford it." She pronounced her "f"s strangely.

I slumped in my seat and idly turned my glass on the bartop. The implications of what she was telling me were enormous.

"Not only that," she said, "but he's got Max going crazy too."

"How?"

"Max has a module of his own now, and he says if Vito is going to wipe the Jews out of history, then he's going to wipe out the Italians."

"What?"

"Max plans to go back and destroy the Romans."

"Where?"

"He's been saying that Carthage never should have lost the Punic Wars, and if he goes back and kills Scipio, Hannibal will win. Then Carthage will dominate the Mediterranean, and Vito and all his kind will vanish."

I groaned. Two madmen. Then I took another look at Candy Goodbody, and everything made a strange kind of sense.

"I feel responsible," she murmured.

"It's not your fault."

"But it *is*. If it weren't for me, the two of them wouldn't be trying to tamper with history."

I had started to lift my glass, but I put it down again. "Did you say *'trying'* to tamper with history?"

She nodded. "They've already tried. At least Vito's men say he has, and I know Max has tried—twice."

"What happened?"

"Nothing. That's the funny thing. Max started to go, then he climbed out of his module again and said it wouldn't work. A few days later he tried again, and the same thing happened."

"Vito too?"

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"Yes. That's what we hear."

"That means someone was back there to stop them and send them home again."

"That's what I thought, but who?"

"It could have been a number of guys in the business. Even me."

"But you didn't know about any of this."

"Not then, but I do now. If I get into this case I'll have to go back and wait for them."

She smiled. "I'll bet you're good at your work."

"Yeah, I'm a pro. And I don't work for free, so we'd better get down to business." I grinned at her. "You understand."

"Our two professions are quite similar in that respect, Mr. Hardy."

FOUR

We left the bar and went to my office, half a block away. When we got there, she looked around, and I knew what she was thinking.

My office isn't the classiest place of business a man could have. The furniture came from a second-hand store, and from the looks of it the last owner must have used the desk as a work surface for grinding corn or something. The carpeting was threadbare, the blinds were half unstrung, and the file cabinets were dented. The only thing that wasn't twice my age was the computer, and even that was getting creaky.

We talked. She gave me what background she could on Finkheim and Gillotte. For good measure, I got her to give me information on herself as well. You never know. In my line of work, everything's significant. The computer recorded it all.

I signed her up, and she paid. It's nice having a paying client. I've had far too few of them, and the mortgage payments and upkeep on a module are one hell of an overhead.

What I didn't tell her was that I'd probably have taken her case without pay. After all, I could hardly let my world vanish in a quarrel between two thugs. But she could afford it, so I took her money. Besides, I'm tired of giving it away. There's another thing my profession has in common with hers.

Our business done, I told her what I needed: "Make a list of the books in Finkheim's library. Especially the history books. He probably has something on ancient Rome. I'll get the same volumes so I'll have some clues as to where he's going to strike next."

She agreed.

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"Also, since you seem to have contacts in Gillotte's camp, get the same info for him. That way I'll know what they're both thinking."

"No problem."

"How soon can you get me the information?"

"Probably by tomorrow."

"Good. The sooner the better."

"Well . . ." She started to reach for her handbag. I didn't want her to go. Not yet, anyway.

"Join me in another drink?" I said, reaching into my bottom desk drawer for a bottle of hootch.

She smiled. "Maybe just one. I have to be getting home soon. Max is very jealous."

"Does he have reason to be?" I said it casually while I poured the drinks.

"No."

"Love him?" I pushed the glass toward her.

She took it, downed its contents in one gulp, and pierced my eyes with her gaze. "I owe him everything, Mr. Hardy. If I hadn't met him, I don't know what would have become of me."

"How did you get into the business?"

"That's another question everybody asks."

"Yeah."

"I was going to be a model, but I wasn't thin enough. Then I tried acting, but that didn't work out either. There seemed to be only one thing I was really good at."

"You could have tried something else."

"Maybe, but I didn't have much education. I ran away from home when I was barely old enough." Again I heard her funny "f".

"Trouble with your parents?"

"Step-parents. Yes."

I poured more booze for each of us. Another orphan. My cases are full of them. The time trade seems to attract that sort of thing. I'm an orphan too.

"You handle yourself well for a runaway orphan."

"Max sent me to tutors. He wanted to make a lady of me."

"I think he succeeded."

"So do I, but he says it's because I made a lady of myself."

"That's quite an insight."

"He's quite a man."

"Then you do love him."

She put down her drink and rose quickly to her feet. "I think I'd better be going now, Mr. Hardy. I'll contact you tomorrow." And

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with that she left.

But she never said she loved him.

FIVE

After she left I sat by myself for a long time, thinking. Then I switched the computer back on and spent some of my newly earned money accessing some public data banks to learn what I could about Finkheim and Gillotte, which wasn't much. Characters like that lead fairly private lives, but Goodbody's story checked out nicely.

As I was switching off the computer, it beeped to remind me to check my personal tickler, but all it contained was a note to look into Chester Semester's discovery of Alexander's diary. Hell, let someone else handle that one. My new case was a lot more important than cleaning up after some meddling archaeologist.

Yeah. This Goodbody caper was going to be a tough one. Two gangsters, each one bonkers over a beautiful woman and each determined to wipe out the other's ancestors. They had made some attempts and failed, so I was already in this thing up to my navel.

Someone had stopped Finkheim from interfering in history, probably back during the Second Punic War, and in all likelihood it had been me. Or rather, it would be me. Damn grammar. No language was adequate for time travel. So stopping their previous tampering attempts would have to be my first move, tomorrow. But now I needed to get some sleep.

I closed the office, walked outside, and was greeted by two grim-looking heavies.

"The boss wants to see you, Hardy," said the first one.

"Don't try nuthin' funny," added the second.

They were both standing with their hands in their coat pockets, and each coat bulged suspiciously where its wearer's gun-hand was located.

I'm not much of a hero when it comes to the strong-arm stuff. Besides, those two guys looked eager for me try something. I shrugged.

Their car was parked by the curb. We all squeezed into the front seat, me in the middle. The driver was big enough to fill half the seat by himself, and he was all muscle. His buddy on my right smelled of cheap cologne and the remnants of a pastrami sandwich he'd had for supper. Beneath the scent of food and cologne was the sharp, bitter smell of sweat.

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No one spoke during the trip across town. We stopped in the driveway of a big old mansion, poured out of the car, and I was escorted—a gun poking in my ribs—into the presence of Vito Gillotte.

He was seated behind a huge desk, flanked by a couple of other hoods, and three or four girls were sitting around looking bored. The girls were dressed in the unmistakable manner of their sisters everywhere—cheap.

If I had caused his time-tampering attempt to abort, he wouldn't remember me, of course; they never do. I would have looped him back to his starting point, before he left, so he would remember none of it. If he ever got it in his head to try the same thing again, I'd always be there, back in the past, sending him home to the present at the instant he set out to change history. He wouldn't recognize me, because for him it never happened, and for me it wouldn't happen until I figured out where in the past it had to be done. Typical bit of unfinished business. My date-book is a sight to behold.

"So," growled Gillotte, "you're a time shamus!" He was big and coarse, just like the image in his newspaper photos, and he spoke with exaggerated hand gestures.

"Temporal investigator," I said.

"Yeah, that's it. I always wondered what you guys were like. You don't look like much."

I didn't respond.

He waved his hand in the direction of a couple of his girls. "See anything ya like?"

"No."

He ignored my answer, reached into a bowl on his desk and popped a small morsel into his mouth. The odor reached me. "Have a garlic clove, Hardy. It's good for the digestion."

"No thanks."

He ate another. "It keeps ya from catchin' cold, too. Ya gotta watch out for your health."

"Why did you bring me here?"

"So that's the way it's gonna be, huh? All business. All right, shamus. It's the broad."

"What broad?"

"That Goodbody dame. I know you talked with her tonight. My boys keep an eye on her."

"So?"

"Some dish, huh?"

"Yeah, Vito. Some dish."

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"She's got class, Hardy. Real class."

"Yeah, Vito."

"It's gonna be her an' me, Hardy. Ya know that?"

I shrugged.

"There's just one problem—that creep Finkheim. She's scared to leave him."

"You can handle Finkheim, can't you, Vito?"

"Yeah. Me an' the boys can handle him real good. It's just that I got partners, ya know? Not in this town, of course. I run things here, Hardy. It's my partners in some other cities I'm thinkin' about."

"No rough stuff any more, right, Vito?"

"Right. We're respectable businessmen now. You know how it is."

"Sort of."

"So I can't bump him off, as much as I'd like to."

"Tough."

He grinned. "Wrong, shamus. Vito Gillotte gets what he wants, see?"

"No. Tell me."

"I got me a module, Hardy. Cost a bundle, too."

"I can imagine."

"So I'm gonna wipe him out, understand? From the past." He gestured backward over his shoulder with his thumb.

"You don't know who his parents are, Vito. He's an orphan."

"Orphan, schmorphan! Who cares about that? I'm gonna wipe him an' all his creep ancestors in one shot. Got it?" He snapped his fingers.

"Why are you telling me this?"

He stood up, his face flushed. "To give you a warning, shamus. Butt out, understand? I know all about you guys—guardians of reality, defenders of the universe, all that Sunday magazine crap. Listen, Hardy. You may think you're some kind of big deal, but to me you're just another private eye—a dick, a flatfoot, a gumshoe. An' I don't want you talkin' to my woman or messin' in my life. Clear?"

"Yeah."

"Then lemme make it clearer, shamus. My partners don't want me to do any killing, but that doesn't apply to crud like you. You're not the law, and you're not the competition. You're nuthin'. I can rub you out any time I want." He snapped his fingers again. "Understand?"

"Yeah."

He turned to Muscles, the driver. "Get him outta here."

"Okay, boss."

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We turned to go.

"Hey, Hardy," said Gillotte.

I looked at him.

"You sure you won't have some garlic?"

"No thanks, Vito."

We left. The two thugs dropped me off where they found me, in front of my office building. As their car sped off into the night, I heard a gruff voice behind me:

"Don't try anything cute, Hardy. We're takin' you for a little ride. The chief wants to see you."

SIX

Max Finkheim was older and balder than Vito Gillotte, and just as unpleasant. He had entered the rackets only a few years ago, after failing in the clothing business, and had enjoyed a spectacular success in his new occupation. Part of his success could be accounted for by the mob's rules against killing one another off, but to a man in my business there are other explanations.

Sudden success could always be caused by time-tampering, and Finkheim's career had all the earmarks of exactly that. Not only had he been showered with almost instant prosperity, but he had the company of Candy Goodbody to go with it. And he was an orphan too.

"You know why I've asked you here," he began.

"No, I don't. And I wasn't exactly asked."

He made an impatient gesture. "You've been speaking with my . . . ah, protegée, Miss Goodbody. Don't try to deny it. I know her every move."

I raised my eyebrows.

"I can guess why she called on you, Mr. Hardy. She shouldn't have taken matters into her own hands, but maybe she did the right thing. You could be useful. What are your plans?"

"None of your business."

"I appreciate your ethics, but we're both on the same side."

"Are we?"

He sighed. "All right. How much are you being paid? I'll double it, and you can keep whatever Miss Goodbody has already paid you."

"I only handle one client at a time, Max. It's easier that way."

He sat without speaking for a few moments. The two henchmen who had brought me to him stood nervously by, obviously unaccus-

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tomed to seeing the chief dealt with in such a fashion. Then he looked up and said: "I could have you killed, you know."

He said it very quietly, very confidently. His voice was almost a whisper. He left no doubt that he was serious.

"I know," I told him.

"Then you'll cooperate?"

"No, Max. And if you're going to kill me, you'd better do it now. People in my line of work are very difficult to catch once we're warned."

Again he sat still, thinking. There was absolute silence in the room. I was aware that my shirt had become wet with perspiration, although the room had seemed comfortably cool when I entered.

He sighed again. "Candy wouldn't like it if I had you killed," he said. "In her own way, she's trying to protect me. Very well, Mr. Hardy. I'll let you go. But see to it that you stay out of my way in this matter. Is that clear?"

"Sure, Max."

"You may go now, Mr. Hardy," he said, giving a brief nod to his henchmen, who escorted me back to their car and dropped me off where they had picked me up less than an hour earlier.

When they had driven out of sight, I leaned against a light pole, lowered my head, and vomited into the gutter.

It was late and I was tired, but things were moving fast and I was running out of time. So as soon as my knees stopped shaking I walked up the creaking stairs to my office, turned on the computer, and went to work.

SEVEN

The computer told me I had received a phone call, and it reminded me to look into the matter of Alexander's diary. I scrolled past that stuff and started firing questions at the machine:

Analysis of Goodbody's story?

VERIFICATION FACTOR . . .

The screen showed nine nines. The computer had sorted her story through its data stores and found complete consistency in what she had told me. Then I asked: Any possibility that she's lying?

NONE. NO MOTIVE.

Yeah. So I asked: She talks funny. Did you detect an accent?

NONE IDENTIFIED.

It was probably my imagination. My next question was an obvious

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"If I had caused his time-tampering attempt to abort,
he wouldn't remember me, of course;
they never do. I would have looped him
back to his starting point, before he left,
so he would remember none of it. If he
ever got it in his head to try
the same thing again, I'd always be there,
back in the past, sending him home to the
present at the instant he set out to change history.
He wouldn't recognize me, because
for him it never happened, and for me
it wouldn't happen until I figured out
where in the past it had to be done.
My date book is a sight to behold."

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one: Is Max Finkheim's career the result of a reality change?

POSSIBLY. THE AFFIRMATIVE FACTORS ARE HIS ORPHAN STATUS, HIS SWIFT ACCOMPLISHMENTS . . .

I scrolled past that too. The stupid machine was feeding back my own input. How about Goodbody? I asked.

NEGATIVE. HER BEAUTY IS AN IRRELEVANT FACTOR. HER CAREER IN PROSTITUTION IS A NEGATIVE FACTOR. HER SUBSERVIENT POSITION IN THE LIFE OF A CRIMINAL IS A NEGATIVE FACTOR. . . .

I scrolled away the computer's response. It wasn't telling me anything I didn't already know. So I got right to the point:

Where will Vito Gillotte make his attempt to eliminate the Jews from reality?

PRE-ROMAN TIMES. THERE ARE SEVERAL POSSIBLE MOMENTS—

Why pre-Roman?

IN ROMAN TIMES THEY WERE TOO NUMEROUS, AND THEY LIVED EVERYWHERE IN THE THEN KNOWN WORLD. BEFORE ROME THEY WERE FEWER, AND MORE GEOGRAPHICALLY CONCENTRATED.

All right. When, pre-Roman? What would Gillotte think of?

ACCORDING TO THE SIMPLICITY PRINCIPLE, I.E., THE ASSUMPTION THAT A TAMPERER WILL DO THE EASIEST THING NECESSARY TO ACCOMPLISH HIS GOAL, THE LIKELIEST EVENTS TO TAMPER WITH ARE AS FOLLOWS:

Dozens of historical events were listed on the screen. I made a printout and resumed my interrogation: Where would Finkheim try to eliminate the Romans?

ONE POSSIBILITY IS MORE LIKELY THAN ALL OTHERS BY A FACTOR OF FIVE. THE BATTLE OF ZAMA IN THE SECOND PUNIC WAR. PRECISE COORDINATES ARE AS FOLLOWS:

I made a printout of that too. It was just as Goodbody had said. By preventing Scipio from defeating Hannibal, Carthage, not Rome, would dominate the Western Mediterranean. So I asked: Why would Candy Goodbody hang around with a criminal like Finkheim?

NO RATIONAL MOTIVE. MY PROGRAMMED CONCLUSION IS EMOTIONAL FACTORS.

Yeah. Good old computer. It knows nothing, but it knows a lot. My next question was one that would only occur to a pro in the time business: Finkheim and Goodbody are orphans. So am I. Any connection?

INSUFFICIENT DATA.

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My favorite answer. It meant that everything was up for grabs. I've seen situations where everyone was an ancestor or descendant or sibling of everyone else, and sometimes all three at once. It can get interesting, sometimes, but why look for extra complications?

Goodbody was supposed to contact me tomorrow with the information to pinpoint Gillotte's historical target, and Finkheim's too. But I already knew what Finkheim was up to, and if I had been the one who stopped him, I wanted to get it over with. I was badly in need of sleep, but I could catch up on that during the trip. So I grabbed my equipment and went outside to my module.

I had a date in the past with Max Finkheim.

EIGHT

I keep my module parked in the alleyway behind my office. It looks exactly like a garbage can. Don't laugh; it's a perfect disguise.

I fed in my computer's coordinates for the Battle of Zama, got as comfortable as I could, and drifted off to sleep.

The dream was one I had had before. It seems to come more and more often these days, which is disturbing. It's one of the first signs of burnout, an occupational hazard in my racket.

I dreamed that we're all little bits inside someone's computer, and it's playing one of those stupid shoot-em-up games, and some idiot kid is working the game paddles. If he plays it wrong, we all get erased and that's the end of everything.

Reality is a lot more solid than that; at least I hope it is. But the analogy to a computer program is striking. Like a program, time flows one way, forward, and no power in the universe can reverse it.

But from within the program, where we are, there can be little commands, like GOTOs, that send you jumping forward or back to some other point, and reality can loop around for a while until something restores the program to its natural flow.

Besides the GOTOs there are the GOSUBs that send you shooting off to some subroutine, a series of events out of the main sequence, places you can journey to over and over again. I've got a few subroutines of my own, places where I can take off for a week or two and enjoy myself without worrying about how to keep the bank from foreclosing on my module.

Throughout the main sequence there are millions of little absurdities, unaccountable events, non sequiturs, incongruities, an-

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achronisms—the stock in trade of a temporal investigator. Most of them are quite normal, part of the true sequence of events, even if they're poorly understood. But some of them aren't natural at all, and they have to be eliminated. That's where I come in. I'm the eliminator, even if it means doing away with an entire reality. It's never pleasant to think about, destroying pseudo-realities, but it's got to be done. There can be only one reality: the one I was born in, the one I've sworn to preserve.

Time is a job, that's all, and not many are cut out for it. Sometimes I wonder if I am. There's no money in it, that's for sure, and you can't discuss your triumphs with anyone because they all involve things that end up not happening. So what's in it for me, except problems most people have never heard of? For example:

There are the bootstrappers—individuals who branched backward in time and became their own ancestors. They usually end up in an endless loop, and the main sequence rolls on without them.

And then you've got the re-programmers—people who aren't satisfied with reality as its exists in nature. They want to go back and make things completely different. It's hard to do, and most who try are strictly amateurs; but it only takes a few sickies to keep a temporal investigator hopping all over reality, keeping things flowing properly.

And finally there are glitches—wild, unpredictable events from who-knows-where. When a glitch shows up, it's the worst kind of trouble you can have, because glitches have no known causes. They just happen.

But for the most part the program—reality itself—is self-executing. If it weren't for tampering, the cosmos would be bug-free. It's got its own built-in error traps, and even glitches are caught and corrected. Usually.

The mission I was going was a fairly simple one. It involved the construction of a loop. When I located Finkheim and his module, all I had to do was be there and stop him. Then his aborted attempt to alter history would never have happened. And if he ever tried to go back and do the same thing again, there I'd be, blocking him. Time would flow on, oblivious to our little loop—

Just then a signal sounded and interrupted my thoughts. My module had arrived.

* * *

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NINE

I had arrived at one of the most decisive moments in history. It was 202 B.C., and two of the greatest military geniuses who ever lived were about to determine the destiny of Europe. Political misfortunes in Carthage had brought Hannibal back to North Africa, where Scipio pursued him and defeated him decisively at Zama. And it was here that Max Finkheim—of all people—was attempting to remove Rome from the history books.

I chose a spot overlooking the Roman encampment, parked my module, took out my tracers, and waited. Tracers are nifty little instruments that detect energy from worldline displacements. Anything from out of time—except closed loops—gives off easily detectable radiation.

My own presence registered nicely, but that was all. The meters read *One.* Nobody else was there who shouldn't be. I settled down to wait. Time is an event-filled continuum, but there are moments when it's a total bore.

And then he appeared. The tracers began clicking furiously, and now the meters read *Two:* Max had joined me.

He was startled when I confronted him. They usually are. With the advantage of surprise I disarmed the gangster and ordered him back into his module, the controls of which I then jammed so it had to carry him back to his starting point. He vanished, and the next time he would see me would be last night, when he hadn't recognized me because this little adventure never happened. Not for him, anyway. My memory is filled with interesting events that never happened.

As my module carried me home again, I reflected that this phase of the job had been easy; almost effortless. I wondered if looping Vito Gillotte would be quite so routine. I had my doubts.

And then my thoughts shifted to a vision of Candy Goodbody, the cause of all this madness. I smiled to myself. I could understand the motives of the men who were willing to alter reality for her, and in a way I couldn't blame them.

But any reality that produced a creature as beautiful as she was certainly worth preserving. And maybe, just maybe, when the whole affair was settled, Candy Goodbody might be persuaded to leave Finkheim . . .

I stopped off at a place I keep, five years before the present, and spent a day getting a haircut, a workout, a massage, and a good night's sleep. Then I went to my office in realtime.

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Candy Goodbody was waiting for me.

TEN

"I tried calling you last night," she said, "but I guess you never got the message."

"I was working," I told her, silently kicking myself for not paying more attention to my computer. "What's wrong?"

"It's Max. He's furious that I hired you. We got word that Gillotte is too, and he's planning a new assault on Max's ancestors. Soon."

"I haven't even figured out where his earlier attempts were. Did you bring me the list of his books?"

"Yes, and Max's too. Here." She handed me a sheet of paper. "That's not all," she said. "Max has decided he can't wait any longer either. Not with Vito so worked up, so he's going to try again today—to destroy Rome."

"How?"

"The same way I told you before. He's had his module checked over, and he thinks it should work now."

I nodded, not telling her that it didn't matter how many times Max Finkheim tried that stunt. I had already blocked it. "Vito's the one who concerns me," I told her. "Let's get this list into my computer."

Vito's list wasn't very long. A one-volume work on world history, a single volume on Jewish history, and one more book—on Atlantis. "What's this junk doing in his library?" I asked her.

She shrugged. "Who knows? The rest of his library—if you could call it that—is a bunch of porno books."

I fed the list to my computer and told it to get their texts from the public library: another bill to pay. I made a mental note to send them a check before they cut me off forever. The computer hummed a while; then the screen flashed: ANALYSIS COMPLETED.

I asked it the same question I had the day before, and this time it gave me two possibilities—the first was somewhat of a surprise because it was so extremely far in the past: the crossing of the Red Sea. The second was more interesting: Alexander's sweep through the Middle East. I scratched my head and asked: Why the Red Sea?

SIMPLICITY PRINCIPLE. VITO GILLOTTE IS A SIMPLE MAN. ALSO, ANNIHILATION AT THAT POINT WOULD ACCOMPLISH THE DESIRED GOAL.

What about the Alexander thing?

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DESTRUCTION OF JERUSALEM BY ALEXANDER WOULD ACCOMPLISH THE DESIRED GOAL.

I asked the computer for more details, and it explained that in the summer of 332 B.C., Alexander's army marched south along the coast of the Eastern Mediterranean toward Egypt, after his victory over the Persians at the River Granicus the year before. On that march, Jersualem had opened its gates to Alexander, greeting him as a liberator. But the city of Tyre had resisted, resulting in one of the most famous sieges in history. When it was over, more than eight thousand Tyrians were killed and thirty thousand sold into slavery. According to the computer, if a switch could be made so that Tyre surrendered while Jerusalem resisted, Vito would have the results he wanted.

It's too complicated, I told the computer. Why select this point?

BECAUSE IT WOULD WORK BEST.

Is it Gillotte's likeliest move?

NEGATIVE. THE RED SEA IS HIS LIKELIEST TARGET BY A FACTOR OF TEN.

I looked up at Goodbody, who had been intently observing my electronic dialogue. "You said he was boasting of going into Biblical times, didn't you?"

"Yes, that's what he's been saying."

I ordered a printout of the proper coordinates. The computer's instructions were quite precise. There's been a lot of historical mapping in recent years, and most events—if they took place at all—can be found with little difficulty. It's not the way it was a few decades ago, when people just jumped in a module and hoped for the best.

"Max and Vito both told me they've been having you followed, so they probably know you're here. That's not good for either of us."

"I know they've been following me, but I think I was able to get here unobserved."

"Maybe. But I won't count on it. Either one of them may try try to have me killed, so I can't hang around and make it easy for them. I'll be going under cover for a while. What will you do?"

"I'm not going back to Max," she announced.

"Why not? He's in love with you. He could've killed me last night, but he didn't because he thought you wouldn't like it. I may not be safe, but you certainly are."

"It's not my safety I'm thinking about," she said. "I'm through with him."

"Oh?" I hoped my eagerness wasn't too obvious.

"We had a terrible argument last night, after you left. I asked

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him to give up his time-tampering plans, but he wouldn't. I told him his efforts weren't needed now that you're on the job, but he wouldn't listen. My mentioning you only made him angrier. So I left him and checked into a hotel. That's where I called you from. I don't think I was followed."

"What are your plans now?"

"I'm not sure. If Max finds me, he might think I've been with Vito. He has a terrible temper. I don't know where to turn, Ben."

I was trying to think of some subtle way of suggesting that she stay with me when she suddenly clutched at me, put her incredibly beautiful head on my chest, and began sobbing.

"Please, Ben," she murmured. "Let me come with you. I'll try not to get in the way."

I lifted her exquisitely formed chin and brushed some of the tears from her face.

All the years I've been fighting to save reality were about to pay off.

ELEVEN

My tracers had been recharging during our conversation. I grabbed them, some weapons, and a handful of computer memory, jammed my hat on my head, reached for my trench coat, and led Goodbody to my module, which took us to the hideaway where I had spent the night. I knew we'd be safe from Max and Vito there, because they weren't skilled in locating people in the past, but I also knew that it was only a temporary sanctuary. Nothing was safe from a reality change unless it existed before the tampering point, and very little in this world that I cared about existed before the Exodus, where Vito was planning to strike.

"This doesn't look the way I expected," she said, glancing around the apartment. "I mean, your office was so . . . messy."

"So is my real apartment. This place isn't mine, not really. I keep it in the past with money I win cheating bookies. As long as it isn't in the present, that sort of thing is legal. In realtime I couldn't afford anything like this. It comes with maid service, too. But don't get any false impressions about me. I'm a real slob."

"Not when it comes to your work. I've read about people like you. You all have an obsession about cleaning up time after others have scrambled it."

"Yeah, I guess we do."

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"It doesn't make sense that you should be the opposite in your private life."

"Think of it as symmetry, sweetie."

I walked to the bar. "Want a drink? I've got a little bit of everything." I started to pour out a shot for myself.

"In a little while. Why don't I get showered and slip into something . . . less confining."

I nearly spilled the booze all over myself, but I steadied my hand and said, "Sure, Candy. Good idea." Then I gulped down the shot I had poured and poured another.

"I'll only be a half hour or so," she said, disappearing into the bedroom. "I hope you're not still wearing your hat and coat when I'm done."

I peeled off the trench coat and threw it in a corner, and tossed my hat there too. That stuff is so much a part of me, I sometimes forget I have it on. Then, to avoid pacing the floor like a nervous bridegroom, I fired up a cigarette, took my drink over to the duplicate computer I always keep in my hideaways, loaded in the memory I had brought with me, and verified again the coordinates for the trip to the Red Sea.

I heard the shower start in the other room, and to keep myself from going crazy with anticipation, I started asking questions about Candy Goodbody:

Vital statistics?

NONE ON RECORD.

That was odd, so I got more specific:

Birth certificate?

NONE ON RECORD.

Check orphanage records.

NO RECORD OF A MISS CANDY GOODBODY.

Check name-change records.

NO INFORMATION REGARDING A MISS CANDY GOODBODY.

Check immigration.

NO INFORMATION REGARDING A MISS CANDY GOODBODY.

What the hell was going on? I lit another cigarette and made myself a fresh drink. Things were suddenly more complicated than I had thought. In the distance I could hear the shower running through the half-opened door to the bedroom. I imagined the hidden pathways those water drops were exploring, and with considerable effort I shook myself back to a businesslike state of mind. Careful,

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Hardy, I said to myself. You're a pro, and don't forget it.

The sound of the shower stopped. "Ben," came her voice. "Could you bring me a towel, please?"

I paused for a moment, torn between the computer and the miracle in the other room. Then I switched the damned machine off and went rummaging for a clean towel.

I mean, after all . . .

TWELVE

Later that evening I got around to making that drink I had promised her, and we sat up half the night talking. Yes, she confessed, she had changed her name, and the one she now used was chosen when she ran away to prevent the authorities from bringing her back to her stepparents. And why, she asked, had I looked her up in my computer?

"It's my job, sweetie. Trust no one. Check everything. It's the only way to make it in the time trade. Nothing personal. Everything else you told me checked out perfectly."

"Everything?"

"Sure." I told her about my looping Finkheim.

"That's fascinating. I had imagined it would be much more difficult. How do your tracers work?"

"It's a bit complicated," I lied. No point in giving away too many tricks of the trade.

"But it's marvelous," she insisted, "to be able to locate any temporal disturbance so easily. Just think how difficult your work would be without such equipment."

I lit a cigarette and thought about it. "Rough," I said. "Almost impossible. Still, I suppose something else would have been developed. Reality has to be protected."

"Reality means a great deal to you, doesn't it?"

"Huh? Of course it does. It's everything."

"But what if it were the wrong reality? What if all this time you were really defending a sequence that had somehow got started by someone's tampering. How would you feel about it then?"

"That's ridiculous. This reality is the true one. It's been carefully preserved ever since the discovery of time travel made its preservation necessary."

"What is reality, Ben?"

She sure knew how to ask complicated questions. I took a deep

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drag on my cigarette and said: "It isn't something tangible, something you can hold onto, like a precious jewel. It's more like a framework, a set of rules. Each thing within reality is expendable, transmutable, but reality remains. It's like the stock market. Stocks go up; stocks go down. Companies go broke; others come along to take their place. Everything is changeable, but the market continues."

"So why get excited if reality itself is changed?"

"Because that's cheating. It's not allowed. Nature plays by the rules, and so do I."

She sipped her drink. "It reminds me of Theseus's ship."

"What's that?"

"An old problem in philosophy. Imagine a ship, built of wooden planks. As it sails on its voyages, old planks are gradually replaced with new ones. Theseus always remains on board. Eventually every bit of wood from the original ship will be removed, and new wood will be put in its place. The question is whether or not it's still the same ship. Is it merely the matter that counts, or the form, or both?"

"What's the answer?"

"Theseus thinks it's the same."

"Yeah, but Theseus isn't made of the same matter he started out with either."

"But he's the same man from one moment to the next, isn't he?"

"Sure. I guess so."

"Is he? Are you? Is anything?"

"Where did you learn to think like that?"

"I told you. Max had me educated."

"Yeah." I thought about Theseus's ship, and I realized that Candy Goodbody was far more of a person than I had first assumed.

"Ben."

"Yes?"

"You're going to stop Vito, aren't you?"

"Uh-huh."

"If you fail, what will become of me?"

"Like the rest of history after his reality change, you'll vanish. Some new reality will exist in place of the old one."

"A different ship? Not the one Theseus built?"

"Maybe in the new reality he built a raft instead, or maybe he didn't build anything."

"But you won't disappear."

"No. I'll be back at the time of the change. If I can't stop Vito, I'll still exist. So will he unless he's awfully clumsy."

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"And if you return to the present, what will you find?"

"Everything will be changed, of course. Western Civilization would be quite different."

"Not entirely, Ben. Classical Greece would be much the same. And maybe Rome too."

"Yeah, I suppose so. But there won't be any Church. Europe will be entirely different."

"There might not be any Dark Ages."

"That's a thought."

"If classical civilization continued, Ben, think how different—how much better—things might be."

"Those are things I don't think about, sweetie. My job is to keep things just the way they were. I like reality as it is."

"But think, Ben. It might be even better. If intellectual progress hadn't been arrested for a thousand years, imagine how far we might have come by now. We might be reaching for the stars!"

"No point in dreaming about it, sweetie. It's not going to happen. Not if I do my job."

"But if you don't . . ."

"Then this is the end for us, and for everything we know."

She put her arms around me. "I wouldn't like that, Ben."

"Neither would I. That's why I'm in the business I'm in."

"If it does happen, I want to be with you, no matter what kind of world we end up in."

"Well, it's going to be a long trip, and there's not much room in my module . . ."

"Take me with you, Ben. Please?" She kissed me.

What could I say?

THIRTEEN

In the morning I checked the equipment one last time. I had kept the tracers charging off the wall current all night, the module was soaking up energy from a power line in the alley, and my weapons were oiled and loaded. In my line of work, nothing is left to chance. The stakes are too high.

I disconnected the tracers from their charging cables and turned them on. They registered exactly *One Point Five.* And that was completely wrong. Candy and I were a few years in the past, so they should have read *Two.* I'd never seen a *Point Five* reading before.

The back-up unit read the same. What the hell was going on? In

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the other room I could hear the shower running again. Candy was the most compulsively clean girl I had ever known. I switched on the computer, hooked it up to the tracers, and asked:

Explain tracer readings.

LIKELIEST CAUSE IS AN EQUIPMENT MALFUNCTION.

Could the tracers be accurate and something is actually giving off a half-reading?

NEGATIVE.

Why?

A DISLOCATION OF WORLDLINES ALWAYS RESULTS IN A QUANTUM OF ENERGY WHICH THE EQUIPMENT READS AS *ONE*. FOR A READING OF HALF THAT AMOUNT, QUANTUM CHRONODYNAMICS WOULD REQUIRE FUNDAMENTAL REVISIONS, WHICH WOULD UNDERMINE THE VALIDITY OF MY PROGRAMMING. UNACCEPTABLE CONCLUSION.

I lit a cigarette and sat there, thinking. Then I asked:

Goodbody is an orphan. If she were a bootstrapper, could that account for the reading?

NEGATIVE. A BOOTSTRAPPER GENERATES THE SAME READINGS AS A NATURALLY CONCEIVED PERSON.

Finkheim is also an orphan. Any connection?

NEGATIVE. SAME ANSWER.

I mashed out my cigarette and started another. I was getting desperate.

I'm an orphan. Any connection?

THIS QUESTION HAS BEEN ASKED BEFORE. SAME ANSWER.

Yeah. I'm always wondering about my past, but I never get any answers. I thought some more about what Candy was saying last night about there being a better reality if there had been no Dark Ages. More advanced science, reaching for the stars. Could she have been serious? Why not? She seemed a hell of a lot more educated than her station in life would indicate, and she hadn't really leveled with me about her name until I caught her lying. Maybe . . .

So I asked: Suppose someone had tampered in the past and created a new reality. When the tamperer returns to the present, does he give off different tracer readings from everybody else?

THE WORLDLINES OF THE ALTERED SEQUENCE WOULD BE OUT OF PHASE WITH THOSE OF THE RETURNING TAMPERER. THE PRECISE QUANTITY OF THE DISCORDANCE IS UNKNOWN. NO EXPERIMENTAL EVIDENCE HAS BEEN—OR CAN EVER BE—OBTAINED.

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Yeah. The computer was right. How would you conduct such an experiment? Wipe out the world and see what happens? But I wasn't satisfied yet.

Could this hypothesis account for the current tracer readings?

THE QUESTION ASSUMES THAT THIS IS NOT REALITY. UNACCEPTABLE QUESTION.

The computer was just as prejudiced as I am. But there were other reasons for rejecting the hypothesis. From what Candy had told me the night before, I knew she wasn't thrilled with the mess our ancestors had made of things. Hell, who was? But she wanted me to stop Max and Vito from meddling with the past, so she couldn't be from some other sequence where things had worked out better. If she were, she would have no desire to preserve present reality, and her actions would make no sense. But just to be sure I put the question to the computer:

Could Candy Goodbody be from another reality?

NEGATIVE.

Explain.

OCCAM'S RAZOR, MORE COMMONLY KNOWN AS THE SIMPLICITY PRINCIPLE.

Yeah. Why invent a complicated explanation for a simple set of facts? My tracers were out of whack, that's all. But at least they were both acting in sync, so I could still carry out today's mission. Just then Candy appeared at the bedroom door, dressed only in a bath towel. A few drops of water were still clinging to her—and who could blame them?

"When did you want to get going?" she asked.

"As soon as possible."

She nodded. "I'll be ready in a few minutes." She turned to go back into the bedroom, then turned again and faced me. "I think I'm falling in love with you," she said.

Now that's my kind of reality.

FOURTEEN

I had never taken a trip so far back in time before, and neither had very many other people. During the passage I cautioned Candy about the dangers of doing anything that could alter history. The most minute alteration of matter so far in the past could cause a worldline deflection of huge dimensions in realtime.

The year was 1262 B.C. It had definitely been established by mod-

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ule-survey that in this year at this place a large number of refugees had fled from Egypt. It was here that Vito Gillotte planned to change the course of history.

The Red Sea itself was rather disappointing, because it wasn't the Red Sea at all but a branch of the Nile Delta, one of many that come to life once a year to carry away the waters from the annual overflow. It was shallow, little more than waist-deep in most places, and it had no sharply defined bed or banks, so the water was spread wide. It was only a runoff from a distant flood, yet it must have looked formidable indeed to a band of city-dwellers.

The advancing refugees were a day away when Candy and I arrived. I promptly took out my tracers and went to work: *One Point Five*. Vito hadn't arrived yet.

We waited. A day passed, and the day after that we watched the crossing, later to be remembered as a divinely assisted close escape from pursuing chariots—of which we saw none. By the third day the people had passed beyond our horizon, and there was still no trace of Vito Gillotte. I was getting nervous.

So we got into my module and I did a fast scan ahead, the next three decades. All I detected was the historical survey team, and they registered correctly on my scanners. Puzzled, I brought Candy back to the site of our three-day vigil and I sat down to do some thinking.

Item: Vito Gillotte had not tampered where he said he would, which is also where the computer predicted he would.

Item: The computer's information—all my information about Vito, really—came from Candy Goodbody. And she had been the one who told me about his earlier attempts at tampering. Vito hadn't mentioned it when I met him.

Item: Candy still registered *Point Five* on my scanners. They worked perfectly for everybody else.

Item: How much do I really know about Candy, anyway?

I was sitting by the flowing water, watching the reeds sway with the current, when she came over and sat down beside me. "What's wrong, Ben?" she asked.

"I think it's time you told me who you really are, sweetie."

"What do you mean?"

"I mean you've been lying about Gillotte and this Red Sea business, and you've been lying about yourself, too."

She stood up and stretched, sensuously. Then she looked down at me and smiled. "I was wondering how long it would take you to figure it out," she said.

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"Tell me about it," I said.

"I've already told you most of it, the night before we left, but you were too distracted to pay attention."

"All that stuff about abolishing the Dark Ages?"

"That's right, Ben. It never should have happened. Doesn't the sheer waste of it sicken you? Ten whole centuries of stagnation and superstition! Nothing accomplished. Science all but obliterated from the globe. Men living in such ignorance and squalor as to make almost any alternative attractive."

"So you're going to change it all."

"By now it's already happened."

"Vito wasn't going to the Red Sea at all, was he? You told him to go to another point in history, later than this one, and you got me to take you here so you'd survive the reality change."

"Exactly. And I think we've spent enough time here now. When we return home, it should all be different."

"You were responsible for Gillotte's behavior, weren't you? It wasn't that he just happened to see you and went insane for no reason. You were pulling the strings all along."

"Right again, Ben. I needed Vito to make the whole thing work."

"Yeah, you needed him to be enraged at Finkheim, who just happened to be Jewish, so that Vito would make exactly the reality change you wanted made."

"You're very clever, Ben. Too bad you didn't figure it out sooner."

"And you carefully chose Finkheim, didn't you? He not only had to be Jewish, but he needed to be an orphan as well. Otherwise you never could have convinced Vito to do what you talked him into doing."

"Of course. Max was perfect. There was certainly no other reason to stay with that nasty old man."

"Why did you lie about your, ah, profession?"

"Isn't it obvious? You men are all alike! Max, Vito, you . . . You all fell in love with me because you thought I was what every man secretly dreams of, an easily obtainable sex object. None of you gave any thought to my mind, my motives. All you ever cared about was the physical part of me. I let you believe the lie because it left me free to manipulate all of you into doing what I wanted you to do. And it was easy, Ben. The less you thought of me, the more you wanted me; and in your unthinking desire there was only one person left to do any thinking—me."

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"I could still find Vito and stop him."

"Not after I destroy your tracers. It's too late, Ben. We're going to a new reality now, and you won't be able to do anything about it."

"I can do it without tracers, sweetie. I know just where to find him."

She looked surprised. "Where?"

"My computer picked out the spot, remember? He's somewhere near Jerusalem, making sure the city is destroyed by Alexander. It shouldn't be too difficult. Toss a few bombs over the wall just when they're deciding to give Alexander a hero's welcome. That should be enough to stiffen their resistance. Then everything should fall into place."

"Very clever, Ben. I underestimated you, and I don't usually make mistakes. I had assumed you were nothing but a time-traveling fool." Her voice was harsh, and again she pronounced the letter "f" strangely, but none of that was particularly disturbing just then.

What bothered me was the sight of the gun she was pointing at my chest.

SIXTEEN

"There's more to this than a scholarly dislike of the Dark Ages, isn't there?" I asked her.

"What makes you say that?"

"A whole lot of things, things I should have paid attention to before. Your accent, for one thing. You speak almost perfect English, but not quite. Every now and then you have trouble with certain sounds."

"So?"

"My computer tried to tell me, but I didn't pick up on it. I asked it if it noticed your accent, and it answered that it hadn't identified it. That should have told me something, but I misunderstood. Actually, it did hear an accent, but it was one that it had never heard before."

"Go on, Ben."

"You register *Point Five* on my tracers. I thought it must be equipment trouble, but it isn't. It's an accurate reading for someone like you. You're not from this reality at all, are you, Candy? You're from some distorted version of it; you're some glitch that slipped into my continuum, and you're trying to get back home. If you knew anything

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about time travel, which you obviously don't, you could have taken some tracers, found whatever it was that caused your own version of reality to vanish, and then you could have corrected the situation. That's what I'd do if I came home to a present that wasn't what I had been expecting. But you didn't know how to do that. Your talents lie in different areas."

"Very good, Ben. You're doing fine."

"There's not much more. The way I figure it, something went wrong in reality. Some little bit of tampering got out of hand, and for a moment a whole new reality came into existence—yours. Somehow—you must have been time traveling at the crucial moment—the tampering got cleared up, and you went back to what you thought was the present in your own reality, but it wasn't your reality you had come home to. It was mine. So you learned the language, teamed up with Finkheim, created the jealousy between him and Gillotte, and here we are. I'm your ticket to safety while the universe reverts back to the way you want it."

"Marvelous bit of deduction, Ben. Honestly, I'm very impressed. The only parts you haven't figured out are the parts you couldn't possibly guess."

"What would those be?"

"For one thing, I don't come from a pseudo-reality, Ben. You do."

SEVENTEEN

"What?"

"It's true, Ben. Mine is the First Reality. Yours is the one that happened by accident. The Dark Ages can be avoided simply by avoiding the religious insanity that was directly responsible for the collapse of civilization. Vito Gillotte doesn't realize it, but he's going to restore the sequence of events to what it was originally."

"Just who are you, anyway?"

"Haven't you guessed? I'm in your line of work, Ben. In the First Reality we have temporal investigators too. I'm one of them—specially trained in learning languages, schooled in all manner of survival techniques."

"Like using men to carry out your purposes?"

"That's part of it, yes. The operatives in my reality are almost all women. We have certain advantages that men aren't born with."

"Yeah. We use tracers. You don't have anything like them, do you? You said so."

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"That's right. We don't use modules, either. We send our agents into the past by direct projection, and they have to survive as best they can, without equipment. After a set period of time they automatically return to the present."

"I thought you were a thousand years beyond us technologically."

"We are, but not in this field. Time travel is a very recent discovery for us. Our genius has gone into other areas. Within my own lifetime, Ben, we expect to reach the stars."

"So how did you survive in my reality? We must seem quite primitive to you."

"Yes, in most ways you do. When I first arrived in your reality I was quite confused. I didn't speak the language, and I almost despaired of ever getting home again. But I survived, Ben. I've been trained to survive in situations just like that. A man took me in, cared for me, taught me English. I learn fast. It's one of the requirements of the job."

"How did you learn where the reality change was?"

"Within a few months I was knowledgeable enough to go to a library and do some research. I started with history, naturally, beginning with the earliest civilizations—which both our realities share in common—and worked forward until I found the discontinuity."

"Which was . . . ?"

"Alexander. He never amounted to anything in my reality. He was just one of many barbarian invaders of the Persian Empire, but he never succeeded. He was wounded during the siege of Jerusalem—"

"A siege that never happened in my reality."

"Right. And he was defeated the following year by Darius. The Persian Empire never died, not the way it did in your reality, Ben. Centuries later it was allied with Carthage."

"And there was no Rome?"

"It existed, of course, but it was nothing like your Roman Empire. The republic never grew large, but it never ended. It was very beautiful. It still is."

"So what was Europe like, for you?"

"Many elements combined in it. Greek, Roman, Persian, the northern tribes, the Carthaginians—they were marvelously practical. It's inconceivable to me that they were defeated by Rome in your reality. The people in my world look very much like they do in yours, but their minds are different. We've been advancing philosophically and scientifically for over two thousand years!"

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"So you researched our history to find out the kinds of men you needed to manipulate. Is that the way you're trained to operate?"

"Yes. That's when I met Max."

"How long did it take you to do all this?"

"About a year and a half."

I nodded appreciatively. "You're good at your work."

"Thank you, Ben. Coming from a fellow professional, that's a real compliment."

I looked at the gun that was still pointed at me. "Now what, sweetie?"

"You have a choice, Ben. Don't try to stop me. Accept it. Come with me to the new reality. You have much that can benefit us. Your tracers alone would make you a rich man. It's a better world than yours, Ben. Far better. And I'll share it with you. And if all of that isn't enough, I can also offer you the stars."

"That's a hell of a package, sweetie. You make it tempting."

"Is that all you can say? Mine is the *true* world, Ben! The original sequence. The First Reality. Isn't that what you've struggled for all your life?"

"It sounds nice, Candy. It really does—even if the worldlines are patrolled by tarts. But somehow I doubt that nature is running a cosmic whorehouse. I think you're a glitch, sweetie. I can't go along with you, not without knowing more than I do now."

"You're a fool, Ben. I offer you the fruits of a golden age that has continued for two dozen centuries, and you turn your back on it. For what? The mud of your own world?"

"This mud could be reality, sweetie. I'm sticking with it."

She smiled at me, but there was no warmth in it. "I've watched you operate your module, Ben. I can handle it myself now. You've been very useful to me, but you're too dangerous to keep alive. I'm going to spend the rest of the day here, making sure Vito has the time to finish his task, and then—" her eyes brightened—"then I'm going home. One day I shall go to the stars."

"And I have to die?"

"I'm sorry, Ben, but it has to be this way. You're a professional, so I know you understand this. Death comes to all of us, one way or another, and in your world it often comes in meaningless and cruel ways. It may comfort you to know that you will die in the service of reality."

"I've had to make that speech myself, you know. In almost those exact words."

"Then you understand?"

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"Like you said, I'm not from the original sequence."

"And you die with consent?"

"Not exactly. Because you're not from the original sequence either."

For the briefest instant she looked uncertain, and that's when I kicked her in the belly.

EIGHTEEN

"You're nothing but a barbarian!" she snapped, doubled over in pain. I picked up the gun she had dropped.

"Yeah. Ain't it awful?"

"What are you going to do now? Save your false reality? Set humanity back more than a thousand years? Will you be proud of your work, Ben?"

"I plan to get to the bottom of all this, sweetie. Both our realities can't be the true one, so I'm going to find out which it is."

"How will you do that—through prayer? Isn't that the preferred technique in your world?"

"I'm going to let reality herself tell me." I gestured with the pistol. "Into the module, sweetie. Move!"

On the way to my rendezvous with Gillotte I told her what I was going to do. Somewhere there really was a First Reality, but neither of us would decide the question by arguing about it. Someone had been the first to tamper during Alexander's campaign, and if I started from the past and worked my way forward, I'd find him. I wasn't sure if it would be someone from Candy's world who made a mess of things and created my reality, or it it were the other way around; but the only way to know for sure was to go and take a look.

"You're a fool, Ben," she told me, as the module neared the target area. "What if you find that your reality actually was the first one? Do you really want to destroy mine?"

"I'd have no choice, sweetie. As soon as I discover which reality the first tamperer came from, that's the one I'm saving."

She scowled but said nothing.

We were at the physical location of Jerusalem, moving forward at a fairly good clip. My tracers still read *One Point Five.* I had them set to sound off, loudly, if any other traces were encountered. Deep down I was scared as hell. What if the tamperer, the cause of the first reality change, were from Candy's world? Could I give up everything I knew, admit that all my life I had been fighting for an

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illusion? Could I let it all go so that Candy's world could be re-created by Vito Gillotte? But it was a better world. . . .

And then my tracers began to roar.

I tied Candy up in the module, making sure she couldn't operate any of the controls, and then I stepped out to take a look. We weren't far from the walls of the city—ancient even then—and in the distance were the campfires of a vast army. Alexander!

Not long from now Vito Gillotte would be showing up to cause the city to hold out and bring on the siege that would result in Alexander's getting wounded, a wound that would somehow mean his defeat at the hands of Darius the following year. There would be no Jerusalem, no defeat of the Persian Empire, no Roman victory in the Punic wars, no Christianity, and no Dark Ages. But there would be Candy Goodbody—and the stars!

My tracers led me over a rise, and there in a narrow valley I saw a module. The tamperer was from my own reality. I set out at a brisk trot, and before long I caught up with him.

He was short, plumpish, scholarly looking, and he was dressed like an Ivy League professor, complete with bow tie. He seemed quite frightened when I grabbed him.

"What are you doing here?" I demanded.

"R-r-research," he stammered.

Suddenly it all became clear to me. For days my computer had been reminding me to look into something, and I had been ignoring it. And now it was staring me right in the face.

I spoke the only words that seemed appropriate under the circumstances: "Chester Semester, I presume?"

He stared at me.

"You're not thinking of snatching Alexander's diary, are you, Chet?"

"How did you know?"

"Never mind that. You can't have it. I'm not sure what happened, but somehow you removed it from his quarters and he became very upset. Maybe he sacked Jerusalem in a fit of rage. All reality was changed as a result."

"If that happened, where did you come from?"

"You recreated me. You stole the book, went home to the present, found a completely changed reality, and you panicked. You came back here and replaced the book, which restored our reality. Then you went home again and came back with a copying machine, stole the book again, copied it, replaced it, and returned home to my reality with a copy of the most valuable book in the world."

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"Then what's your complaint? I've done no harm. That is, I will have done no harm. Let me get on with my work."

"Sorry, Chester, I can't. Because during the brief interval that the other reality existed, someone who was time traveling got caught in the switch, and when you restored our reality, she returned to the present expecting to find her world—the one you briefly created, the one you thereafter destroyed. But she ended up in our reality. And she's here now, trying to obliterate it to restore her own world."

He blinked his owlish eyes at me, not really understanding.

"There's no way I can explain it to you," I said, "but you'll have to forget about Alexander's diary. It was lost originally, and it'll have to stay lost."

"But surely, my good man, there's a way to work this thing out . . ."

"Forget it, Chet. Let's take a walk back to your module. You're going home, empty-handed."

"Oh, dear," said the archaeologist. "This is a most disappointing turn of events . . ."

"If only you knew."

I looped him back to his starting point, and he didn't put up any resistance. Even to the last minute he didn't realize the damage he had done, but once he got home to the start of his loop, it wouldn't matter. The caper was over.

Then I walked back to my own module, where I had left Candy. Her reality was gone now. I had removed the cause of its coming into existence.

Candy Goodbody, the most beautiful girl in any reality, was a real miracle now, the sort of thing philosophers debate about. She was an effect without a cause—and a dangerous one.

"You look quite pleased with yourself," she said while I untied her. "I assume you've won our little contest."

"Yeah. Mine is the First Reality, sweetie. Yours is nowhere."

"Congratulations, Ben. It's not every day someone wins a whole universe."

"It's only a skirmish. The war never ends. But . . . " I tilted back my hat brim and scratched my head. "You're one hell of a loose end."

NINETEEN

"Leave me here, Ben. No one from my reality will ever come searching for me. You've seen to that."

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"True, but it's a busy era. You'll be found by someone. And with your skills . . ."

"Then take me to an untrafficked time . . . the Dark Ages."

"No good, sweetie. It's not that I'm not worried about you. You'll survive. In a matter of days you'll be living in the castle of some local king as his favorite mistress, and you'll have the dumb thug obeying your every whim. But we both know that some historian, specializing in particularly dreary eras, will come by and be attracted to your traces, and you'll convince him to take you back to realtime, and you'll start the whole thing all over again. No sweetie, with you around all of reality is in jeopardy."

"It seems that you have no choice, Ben. You have to kill me."

I didn't respond.

"It's difficult, isn't it? A little while ago you destroyed my entire reality. Billions of people—gone. We've both done it before. We're professionals. But now you have to kill an individual, and it's not the same."

"The idea didn't bother you very much, sweetie, back when you were the one holding the gun."

"I didn't want to kill you, Ben. I tried to offer you a choice. You should have accepted my offer. Mine is the better world. Better in every way."

I looked down at the gun in my hand. I had always been prepared to pay reality's price, but this time . . .

"Do your job, Ben. I understand perfectly. It's what I'd do in your place."

"I wish you weren't so enthusiastic about it."

"Why shouldn't I be? My world is gone. All the knowledge, all the beauty—vanished. To you, the stars are only pretty lights in the sky. Kill me, Ben."

I pointed the gun at her.

"Remember what you destroyed today, Ben. I've lost, but you haven't gained anything. I don't want to live in a universe of barbarians. Get on with it!"

I squeezed the trigger. She started to say something else, but her words were cut off by the sharp crack of the gunshot.

Maybe her world *was* superior. But it wasn't real.

I'm back in the same old bar now, sipping on another Scotch, thinking again about all the realities that ever were. No one knows about Alexander's diary any more. No one ever found it, not in the true sequence of events.

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Which means that the pseudo-reality that once existed never materialized, and mankind won't be reaching for the stars for a long time to come. And there won't be a beautiful woman named Candy Goodbody to come over and sit down beside me and draw me into an adventure too improbable ever to have taken place. I never held her, never knew her. Not really.

The bartender is wiping up near where I sit, and he casts an occasional glance my way, probably wondering what the guy in the hat and trench coat is looking so sad about. What the hell does he know about time, or reality? What does anyone know?

I know one thing. After living through a hundred false realities and destroying them, and coming home again to live in this peculiar state of affairs we call existence, I know one thing, and it's this: time is just a four-letter word. ●

MARTIN GARDNER (from page 122)

FOURTH SOLUTION TO DR. MOREAU'S MOMEATERS

You were told that the problem could be solved without knowing the number of male fish. Therefore the answer must be the same regardless of how many males. So let the number of males be 0. The tank will then contain 4,996 females. Since each female has five fins, the total number of fins will be 5 times 4,996, or 24,980 fins.

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LETTERS

Dear Dr. Asimov:

I must be missing something or else I'm incredibly dense. In your editorial (March 15) you praise your comrades in arms on their stance of emphasizing the science in science fiction. I interpreted the editorial to emphasize the technical aspect of science fiction.

However, the stories in the same issue didn't exhibit any sort of technology. Was this a fluke or is it possible to have science without technology?

Please forgive my ignorance. All apprentices must learn everything by being told, even if it's only to be told to open their eyes.

Diane M. Innes
P.O. Box 06005
Columbus, OH 43206

There are good stories with and good stories without technology. We only guaranteed good stories. If some issues are low on technology, that doesn't bother us.

—Isaac Asimov

Dear Dr. Asimov:

After having thoroughly enjoyed "Aquila the God" by S. Sucharitkul, I was appalled to find his "notes to pacify purists" at the end of the story. The magazine is supposed to contain SCIENCE FICTION. By the very term "science fiction" I could only assume that the writer is at liberty to write of science that is not fact. All, it seems to me, that the so-called "purists" are trying to do is to convince themselves how very intelligent they are at the expense of the best SF writers in the world. I may not be as well-educated as some of your armchair critics, but I have been enjoying science fiction for over half of my lifetime and to see an exceptional writer making excuses for material that in no way diminishes the pleasure of reading his story is revolting.

Frank J. Santerame
Seymour, CT

You make a mistake, good sir. To write of fictional science is one thing. To write of wrong *science is another. In good science fiction, we can violate the law of conservation of energy, if we can put together a plausible reason for doing so; violating it because the writer never heard of the law of conservation of energy, or doesn't know what it is, is impermissible. When a science fiction writer demonstrates that he knows science, he's not showing off; he's just doing his job.*

—Isaac Asimov

Dear Doctor Asimov:

Many years ago, in the days of the

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Hydra Club in New York, when we met, I knew you as "Ike."

I was one of the few nonprofessional members of Hydra at the time, and I admired everyone I met. My liking for science fiction was fixed by John Campbell's influence on the style and subject matter of the stories he bought for *Astounding*. The stuff I have been reading in your magazine does not attract me. It could be that my tastes are old-fashioned and do not respond to material that is called science fiction nowadays.

I would not consider any story in the April issue science fiction as I know it. Fantasy, yes, and even then I did not find them enjoyable. Please, Ike, what happened to stories with a science background? Where did the stories with villains and heroes and problems of the intellect go? Why do I find it impossible to identify with the characters in the stories in today's magazines?

Sometimes I feel that today's editors would not buy "Nightfall" or "Foundation" or "Who Goes There" and so on.

I have said it before and will keep on saying it until someone listens; I read to be entertained and lifted out of my daily problems. I do not need to read downbeat stories with anti-heroes. I have enough troubles of my own; I don't need someone else's. When I shut the covers of a magazine or a book and feel worse than I did when I started, I feel cheated. What happened to optimism? There used to be a time when problems were solved one way or the other; when villains, although "sympathetic," were hissed at, and heroes and heroines were cheered. Has the psyche of America been so destroyed by the events of the last two decades that we have lost our faith in the future?

Larry Rothstein
Box 2039
Pittsburgh, PA 15230

Dear me! You scold us for being downbeat and others scold us for being frivolous and light-hearted. How do we manage to do both simultaneously? And, by the way, I allow no one to call me Ike, so your memory must be faulty.

—Isaac Asimov

Dear *IAsfm* People,

Although I was at first put off by Avram Davidson's circumloquacious and parenthetical style, I've grown accustomed to it and look forward to his articles. I've found the secret is to subvocalize; it reads as if it talks. (Try not to move your lips, though, unless you're alone.)

The next time you print music, please have mercy. It's hard enough for me to play without having to decipher those crowds of incidentals. I still don't know what it is supposed to sound like. It's a great idea, though. Now all we need is a Science Fiction parade to march in.

One thing, among many, that I appreciate about your magazine is its liberated attitude. Not only do you publish women writers, but some stories actually have women heroines! Also most of the other stories portray women in an acceptable fashion. Nothing spoils a good story for me faster than a stereotypical female character. To me, that's just plain lazy writing. As a matter of fact, my first introduction to feminism was through an article written

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by the Good Doctor in the 1960s for the *Magazine of Fantasy and Science Fiction*.

Marsha Preston
New Brighton, Pa.

That's right. I was a feminist before it became fashionable. And I still am. Kathleen and Shawna are feminists also, I suspect.

—Isaac Asimov

Dear Dr. Asimov:

In regard to Shawna McCarthy's letter to the readers in your March issue about spelling: BRAVO! HOORAY! VIVA!

Nothing interrupts the flow of a story for me worse than a jarringly misspelled word. Many people who don't take the time to proofread, I fear, are reacting defiantly (if subconsciously) to the third-grade teacher who nagged them about it. But we need to realize that language *is* communication; those who don't care enough to pay attention to it don't want to be understood. If someone hasn't the time or interest to correct her spelling, I don't have the time or interest to read what she writes.

I only wish you could send that note to the proofreaders of the modern publishing business. In a society with a better than 90% literacy rate, there is no excuse for typos.

Keep that blue pencil sharp.

Sarah Stegall
Austin, TX

Dear Dr. Asimov,

The March 15 issue of *IAsfm* is the first one I have ever read, and I was very impressed. The quality of stories in the issue was very high, and they were very fast reading. I especially liked Robert Silverberg's "The Time of the Burning," "Park Your Car on Baychester Road Tonight," by Bill Bickel, and the "Adventures in Unhistory" article on werewolves by Avram Davidson. And the books and SF-con info columns were very informative and helpful.

One thing popped into my mind after I had finished reading the issue, and that was, "Does Dr. Asimov ever write stories for his own magazine?" I hope you do, because science fiction just doesn't seem the same when you're not writing it.

Richard Kruss
9401 Lorel
Skokie, IL 60077

Yes, I do, as often as I'm able. (See page 36.) There are a couple of stories and an article waiting to be published in future issues of this magazine; and, of course, I write the monthly editorial.

—Isaac Asimov

Dear Dr. Asimov,

I would like to comment on the letter from Ed Brady that was in your April issue. He makes the statement that if a person doesn't like an author's works, he should skip such stories. I use to have similar feelings on that subject. Not anymore. I became acquainted with *IAsfm* in the spring of '79 when the "Momus" series by Barry B. Longyear was being run. I didn't like them, so I just assumed I did not like Barry B. Longyear's works. When the Sept. '79 issue came out, I saw "Enemy Mine," noticed the author, thought, "No, I can't stomach 60 pages of Longyear," and skipped the story. Then, in the Oct. '79 issue,

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without noticing the author, I read "The Homecoming." I loved it. I then looked to see who wrote such a wonderful story. To my shock and amazement it was Barry B. Longyear. I then went back and read "Enemy Mine." I found "Enemy Mine" to be one of the most excellent pieces of science fiction I have ever read. If I had initially noticed the author of "The Homecoming," I would have never read it, or "Enemy Mine," or any of the other excellent works by Barry B. Longyear.

So the moral of the story is: don't boycott a particular author's works just because you haven't liked anything you've read by him yet. You'll miss out on a lot of real gems.

I would also like to comment on the letter from Mr. Robert B. Mead, who critized *IAsfm* for being "frivolous." Although I do enjoy the puns, poems, and an occasional lighthearted story, Mr. Mead does have a point. But it's not just *IAsfm* that's turning that way. It's the general trend of science fiction everywhere. Science fiction and science fantasy are merging to form a new type of reading, which I like less than the pure forms of either. There is nothing more disappointing than to begin reading a story labeled "science fiction" and find this cross-breed. I guess I'm what you could call a "hard-core" sci-fi fan.

Wendy Linn
Bellefonte, PA

We're only responsible for our own magazine, of course, and there we see nothing wrong with being lighthearted. The world is grim enough as it is.

—Isaac Asimov

Dear Dr. Asimov;

I know you must be tired of hearing your praises sung. After so many years it must have become dreadfully monotonous! But I feel compelled to add my voice to the chorus.

The specific objects of my delight are your editorials. They challenge, delight and inspire, all at once. Furthermore, the words, while few in number, seem carefully chosen. As such, they are fine examples of the art of communication. Finally, your words have inspired ink to flow from this impoverished pen, and for THAT gift, I am deeply grateful to you.

Jim Hoyt
Wilmington, DE

I am never tired of hearing my praises sung. Thanks.

—Isaac Asimov

Dear Dr. Asimov;

The saddest tale I, a writing teacher, hear is, "All I need to write is a better pencil . . . a typewriter . . . an electric typewriter." Now, Mr. Crafts (March issue) has added another paragraph to that sad refrain.

Please, do not confuse the tools with the art. Technology is neutral. Michelangelo did his work without acrylics. That champion penny-a-word hack, Chuck Dickens, burned up the paper with a quill pen. If you cannot write without a word processor, you cannot write with one. The blessing that electronics bestow is speed—not quality.

If you wish to write—write. Then find a literate person who does not like you and have him rip your beloved work into bloody shreds. Then

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rewrite. If it hurts, good; everything worthwhile does.

John Warren
Assistant Professor
East Carolina University
Greenville, NC

I agree completely—well, almost. I have never showed my stuff prior to publication to anyone but an editor. That's all the ripping I can stand.
—Isaac Asimov

Dear Dr. Asimov:

With all your talents as author, scientist, teacher, philosopher and Renaissance man, you have flunked the test as Indian guide.

In your editorial "Don't You Believe" (April 1982 *IAsfm*) you state: "If the prey sees, hears or smells the approaching predator, it is off at once . . . The predator may be hidden, noiseless, and moving upwind."

If the predator is upwind, the prey is long gone, Doctor.

J.W. Howard
Norfolk, VA

Let's see who flunked. I didn't say the predator was upwind; I said he was "moving upwind" and that he was "approaching." A predator who is approaching while moving upwind is downwind *of the prey.*
—Isaac Asimov

Dear Dr. Asimov:

Let me first congratulate you on the exceptional magazine you publish. I feel it is the only one worth not missing an issue of, so I have become one of your newest subscribers.

However (there's always a however), there are two things I find worth commenting on. (1) I received your format and story requirements, and I find that there is no mention of your poetic requirements though I'm sure you receive many such submissions. (2) Although you print some poems by different authors, nearly all your Haikus are written by Robert Frazier. I find it strange for a magazine that takes pride in bringing new authors to the forefront of the SF world to restrict itself to only one author when it comes to other forms of expression.

Laurette M. Catalano
3071 Kingsbridge Terrace
Bronx, NY 10463

Before we can publish haiku by more than one poet, we have to receive reasonable haiku from more than one poet. All submissions to the editor will be given serious consideration.

—Isaac Asimov

Dear Editor,

Recently Dr. Asimov wrote a scathing editorial about the religious right and the fight over teaching creationism in the schools. It was a well-deserved attack, and magnificently on target. Freedom of religion definitely should include freedom *from* religion. But the editorial made me realize something I have been seeing more and more of lately. There have been many such "attacks" from SF sources recently, and not only politically motivated right-wing groups have been catching it in the teeth.

There seem to have been some harsh lines of demarcation laid down by both "sides" of the world

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of ideas. In one camp there is Science, Hard Facts, Observable Truth. In the other is Revealed Truth, Subjective Reality, and the Unexplainable.

From the beginning, there have been shots across the bow, but lately it's becoming a hot war. I am distressed by the stance being taken by much of the SF community. Science fiction has nothing for a logo if not the Open Mind. It should be clear by now, after fifty years of quantum science, that truth is a relative thing, probably a regional thing, in our universe. It is impossible to separate the Observer from the Observed. To claim to be privy to an Objective Truth is absurd. Just because the religionists fall into that absurdity, not everyone has to follow. Perhaps a degree of mind-set is to be expected. Even Einstein rejected the quantum universe. But with physics and metaphysics on what appear to be intercept courses, it is not wise to reject out of hand *all* the products of the "other" camp. It is subtracting an exceptionally rich source of thought from the collective data banks of humanity. There must be, in all probability, a lot of dreck in the metaphysical camp. Look at dreck science has waded through! Flat Earths, geocentric universes, scientifically proven inferior races, ad infinitum.

Truth is apparently much like treason: primarily a matter of dates. Perhaps it would be wise to pay closer attention to what goes on in the other camp. Science, after all, has been a source of inspriation to philosophers and magicians for ages. Many great scientists stood with a foot in both camps. Isaac Newton cherished astrology, and his defense of that study is the perfect rebuke to a scoffing mind: "I have studied it, sir, and you have not." Too many writers and editorialists have lately taken to openly jeering and, in some instances, resorting to name calling and slander when writing about astrology, magic, cabbalism, and metaphysics in general. And all this without knowing the first thing about them; this much is obvious to anyone who *does* know the first thing about them.

It seems that if SF can live comfortably with something as improbable as Schroedinger's Cat, it could at least peer a little more closely at the Philosophers' Stone. I for one, do not believe they are mutually exclusive concepts, but probably more closely related than is currently thought.

B.P. Kelly
Programmer Training, FCTCL
Dam Neck, Virginia 23461

I am all for everyone speaking his or her mind. My objection is to calling in the government to define what is and is not science. This is what the religious right is trying to do, and this, and only this, is what I will fight to the end.

—Isaac Asimov

Dear Editor:
Which Page of IAsfm Do You Read? (May 1982 Issue)
Page 41, "The Curious Consultation" by J. O. Jeppson:

"I understand you read that sci-fi stuff."

"SF! And what's that got to do with your patient?"

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Page 56, "Co-existence" by David Brin:

"Are you Daniel Brand, the sci-fi writer?" the larger of the two asked.

"Um, that's Science Fiction. . . . Besides, I write a lot of fact articles . . . too."

Page 105, "The World of (ī)" by Bryan A. Hollerbach:

To those who pronounce it "sci fi"
I *must* sadly say with a sigh:
"Please study your diction,
For in 'science fiction'
The second word has no long i."

Page 187, "Promo" for Classified Advertising:

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Robert A. Winter
East Greenwich, R.I.

NEXT ISSUE

The November issue of *IAsfm* promises to be an especially varied one. In addition to a Profile of well-known paleontologist Stephen Jay Gould (author of *The Panda's Thumb* and *The Mismeasure of Man*), we'll have a new short story by Larry Niven, a long novella by David Brin (author of the popular "Loom of Thessaly" in our November 1981 issue), a short story by George R. R. Martin, and much more, including a new *IAsfm* crossword puzzle, Mooney's Module, On Books, Martin Gardner, and all the rest. Don't miss it. On sale September 28.

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SF CONVENTIONAL CALENDAR

by Erwin S. Strauss

It's WorldCon time again; but whether or not you make it, there's a chance to meet the Good Doctor in October. Make plans now for social weekends with your favorite SF authors, editors, artists and fellow fans. For a longer, later list, an explanation of cons, and a sample of SF folksongs, send me an SASE (addressed, stamped envelope) at 9850 Fairfax Sq. #232, Fairfax, VA 22031. (703) 273-6111 is the hot line. If a machine answers, leave your area code and number. I'll call back on my nickel. Send an SASE when writing cons. For free listings, tell me about your con 5 months ahead. Look for me at cons as Filthy Pierre.

SEPTEMBER, 1982

2-6—**ChiCon IV.** For info, write: **Box A3120, Chicago IL 60690.** Or phone **(312) 565-1000** (10 am to 10 pm only, not collect). Con will be held in: Chicago IL (if city omitted, same as in address). Guests will include: A. Bertram (Rim Worlds) Chandler, Lee Hoffman, etc. (too many to list). The 1982 World SF Con, at the Hyatt Regency Hotel. Join at the door for upwards of $50.

24-26—**BabelCon, c/o Marshall, 1160 36th SW, Wyoming MI 49509** Grand Rapids MI. Costume cantina.

24-26—**URCon, Box 6647, Rochester NY 14627.** The University of Rochester SF Society's annual affair.

24-26—**MosCon, Box 8521, Moscow ID 83843.** Marion Zimmer (Darkover) Bradley, Wendy (Elfquest) Pini, fan Steve Forty. Masquerade, Jacuzzi party, Sunday brunch, Lensman awards. Sounds relaxed.

OCTOBER, 1982

1-3—**CoCon, c/o ESCO, Box 400, Bronx NY 10471.** *Stamford CT. Relaxacon with I*S*A*A*C A*S*I*M*O*V.*

1-3—**ArmadilloCon, c/o Taylor, Box 9612 NW Sta., Austin TX 78766. (512) 443-3491, 477-8218 or 474-2275.** Geo. Alec Effinger, Ed Bryant, George R. R. ("Windhaven") Martin, Howard ("Ugly Chickens") Waldrop, Chad Oliver, Leigh Kennedy, fan Joe (Moamwrath collaborator) Pumilia.

8-9—**RoVaCon, Box 117, Salem VA 24153. (703) 389-9400.** Northside High School, Roanoke VA. Philip Klass (William Tenn), artist Kelly Freas, M. A. Foster, Rudy ("Software") Rucker, Ralph Roberts, Paul Dellinger, Douglas Chaffee, Phil Hawkins. Masquerade, cantina, workshops.

8-10—**FandersonCon, Box 308, London W4 1QL, England.** The eponymous Gerry Anderson, Ed Bishop, Gray.

8-10—**LastCon, Box 13-002, Albany NY 12212.** W. A. (Bob) Tucker, Lee (Shree) Killough, Leslie Turek.

8-10—**StarCon, Box 3096, Lubbock, TX 79452.** Jack (Humanoids) Williamson, Bob Vardeman, G. Proctor.

8-10—**OctoCon, c/o Spellbinders, Box 1824, Santa Rosa CA.** Zelazny, McQuarrie, Niven, M. Z. Bradley, M. Randall, P. Anderson, C. Brown, T. Carr, E. Lynn, K. Sky, D. Gerrold, J. Hogan, Goldin, F. Nelson, Preuss, J. Stanley, M. Carroll, R. Dettling, D. Dixon, R. Lupoff, A. Austin, G. Barr.

15-17—**RocKon, Box 9911, Little Rock, AR 72219.** C. J. (Faded Sun) Cherryh, M. Wallbank, J. Coulson.

29-31—**World Fantasy Con, Box 8262, E. Hartford CT 06108. (203) 742-5417.** Peter ("Ghost Story") Straub, Joseph Payne Brennan, Donald Maitz, Charles L. Grant. The WorldCon for fantasy fans.

29-31—**NecronomiCon, Box 678, Thonotosassa FL 33592.** Stone Hill FL. Andrew J. Offutt (John Cleve).

NOVEMBER, 1982

5-7—**NovaCon, c/o Andromeda Bookshop, 84 Suffolk St., Birmingham, B1 ITA, England.** Harry Harrison.

SEPTEMBER, 1983

1-5—**ConStellation, Box 1046, Baltimore MD 21203.** John (Zanzibar) Brunner, D. Kyle, Jack (Well of Souls) Chalker. The 1983 WorldCon. Go to smaller cons if you can to prepare for the WorldCons.

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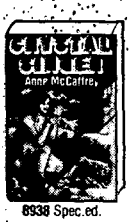

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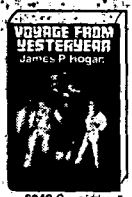

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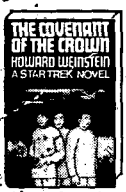

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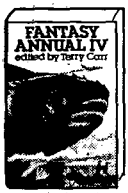

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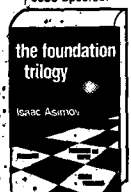

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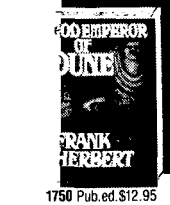

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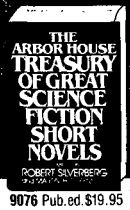

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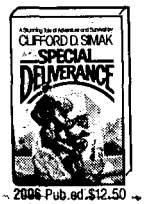

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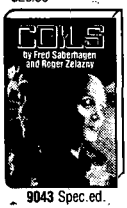

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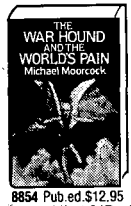

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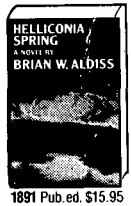

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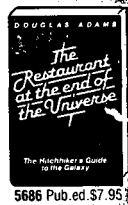

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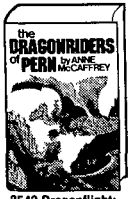

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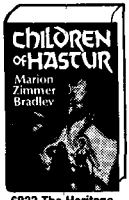

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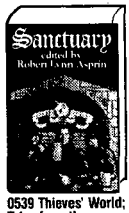

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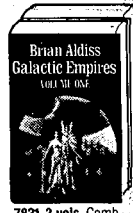

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